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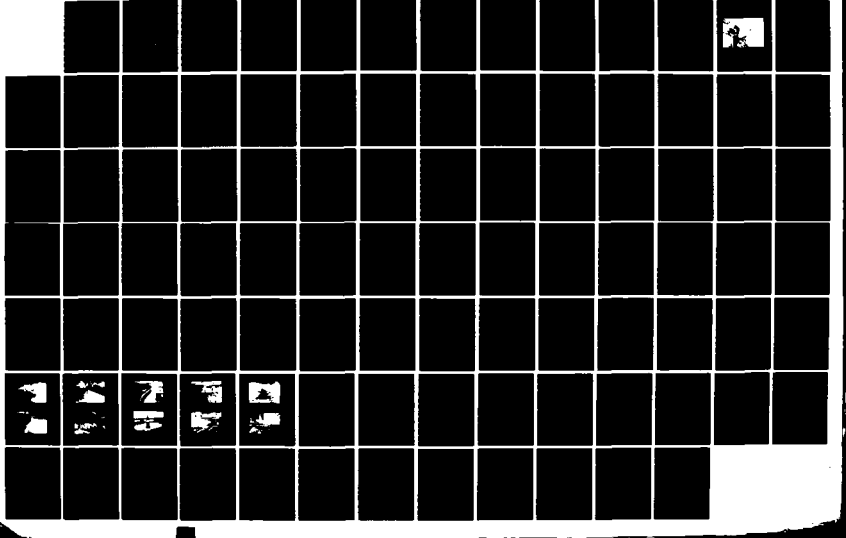
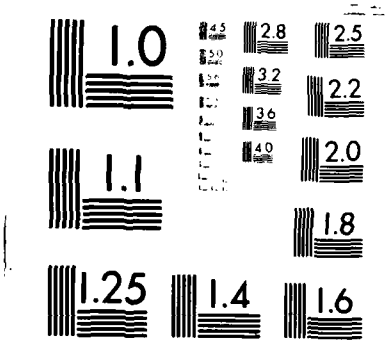


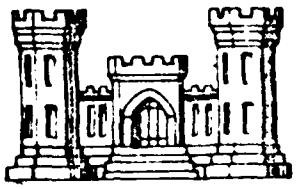


MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A

MERRIMACK RIVER BASIN
CAMPTON, NEW HAMPSHIRE

CAMPTON POND DAM
N.H. 00130

PHASE I INSPECTION REPORT
NATIONAL DAM INSPECTION PROGRAM



DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS. 02154

JUNE 1979

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19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

DAMS, INSPECTION, DAM SAFETY,

Merrimack River Basin
Campton, New Hampshire
Mad River

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The dam is composed of three main sections including an earth dike with stone masonry retaining wall, a concrete dike section and a solid concrete spillway section. It is small in size with a significant hazard classification. The dam was found to be in fair condition based on a limited spillway capacity of only 52 percent of the test flood.

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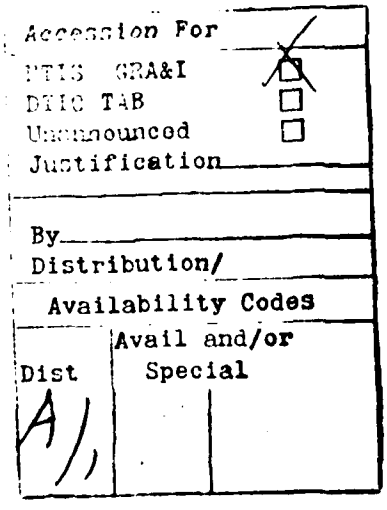
CAMPTON POND DAM

NH00130

CAMPTON, NEW HAMPSHIRE



PHASE I INSPECTION REPORT

NATIONAL DAM INSPECTION PROGRAM

NATIONAL DAM INSPECTION PROGRAM
PHASE I INSPECTION REPORT

Identification No:	NH 00130
Name of Dam:	Campton Pond Dam
Town:	Campton
County and State:	Grafton, New Hampshire
Stream:	Mad River
Date of Inspection:	May 2, 1979

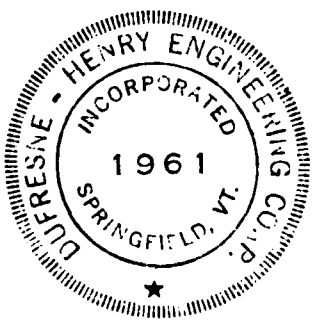
BRIEF ASSESSMENT

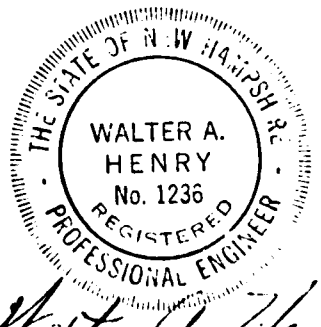
The Campton Pond Dam is composed of three main sections including an earth dike with stone masonry retaining wall, a concrete dike section and a solid concrete spillway section. The overall length of the dam is approximately 300 feet and the maximum height at the spillway is 39 feet. The dam is equipped with flashboards, but they are not in use. The reservoir has a drainage area of 58 square miles and impounds approximately 350 acre-feet which is used for recreation purposes.

The dam is classified as small and has a significant hazard classification. Based on size and hazard classification a test flood of one-half the probable maximum (1/2 PMF) was selected. The test flood inflow was calculated at 30,900 CFS (536 CSM). Since this is a run-of-the-river type dam, there was no adjustment for surcharge storage and outflow was assumed to equal inflow. The spillway capacity with the highway stop logs in place is 16,000 CFS which is 52 percent of the test flood which would overtop the dam by 3.5 feet.

The dam was found to be in fair condition based on a limited spillway capacity of only 52 percent of the test flood. The new concrete cutoff wall installed in 1978 to seal a high water leak through a stone masonry wall has not yet been tested under high head conditions. This should be inspected during the next high floodwater condition. Minor spalling of concrete is occurring at several locations and should be repaired during the next inspection and maintenance. Periodic technical inspections should be performed at least every two years.

Since the spillway capacity is only 52 percent of the computed test flood, it is recommended that formal written procedures be established for the installation of the highway stop logs and evacuation of downstream residents.





Walter A. Henry

This Phase I Inspection Report on Campton Pond Dam has been reviewed by the undersigned Review Board members. In our opinion, the reported findings, conclusions, and recommendations are consistent with the Recommended Guidelines for Safety Inspection of Dams, and with good engineering judgement and practice, and is hereby submitted for approval.

Joseph W. Finegan

JOSEPH W. FINEGAN, JR., MEMBER
Water Control Branch
Engineering Division

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Chief, NED Materials Testing Lab.
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Engineering Division

APPROVAL RECOMMENDED:

Joe B. Fryar

JOE B. FRYAR
Chief, Engineering Division

PREFACE

This report is prepared under guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I Investigations. Copies of these guidelines may be obtained from the Office of Chief of Engineers, Washington, D.C. 20314. The purpose of a Phase I Investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspections. Detailed investigation, and analyses involving topographic mapping, subsurface investigations, testing and detailed computational evaluations are beyond the scope of a Phase I Investigation; however, the investigation is intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. In cases where the reservoir was lowered or drained prior to inspection, such action, while improving the stability and safety of the dam, removes the normal load on the structure and may obscure certain conditions which might otherwise be detectable if inspected under the normal operating environment of the structure.

It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through continued care and inspection can there be any chance that unsafe conditions be detected.

Phase I inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established Guidelines, the Spillway Test Flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. Because of the magnitude and rarity of such a storm event, a finding that a spillway will not pass the test flood should not be interpreted as necessarily posing a highly inadequate condition. The test flood provides a measure of relative spillway capacity and serves as an aid in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general condition and the downstream damage potential.

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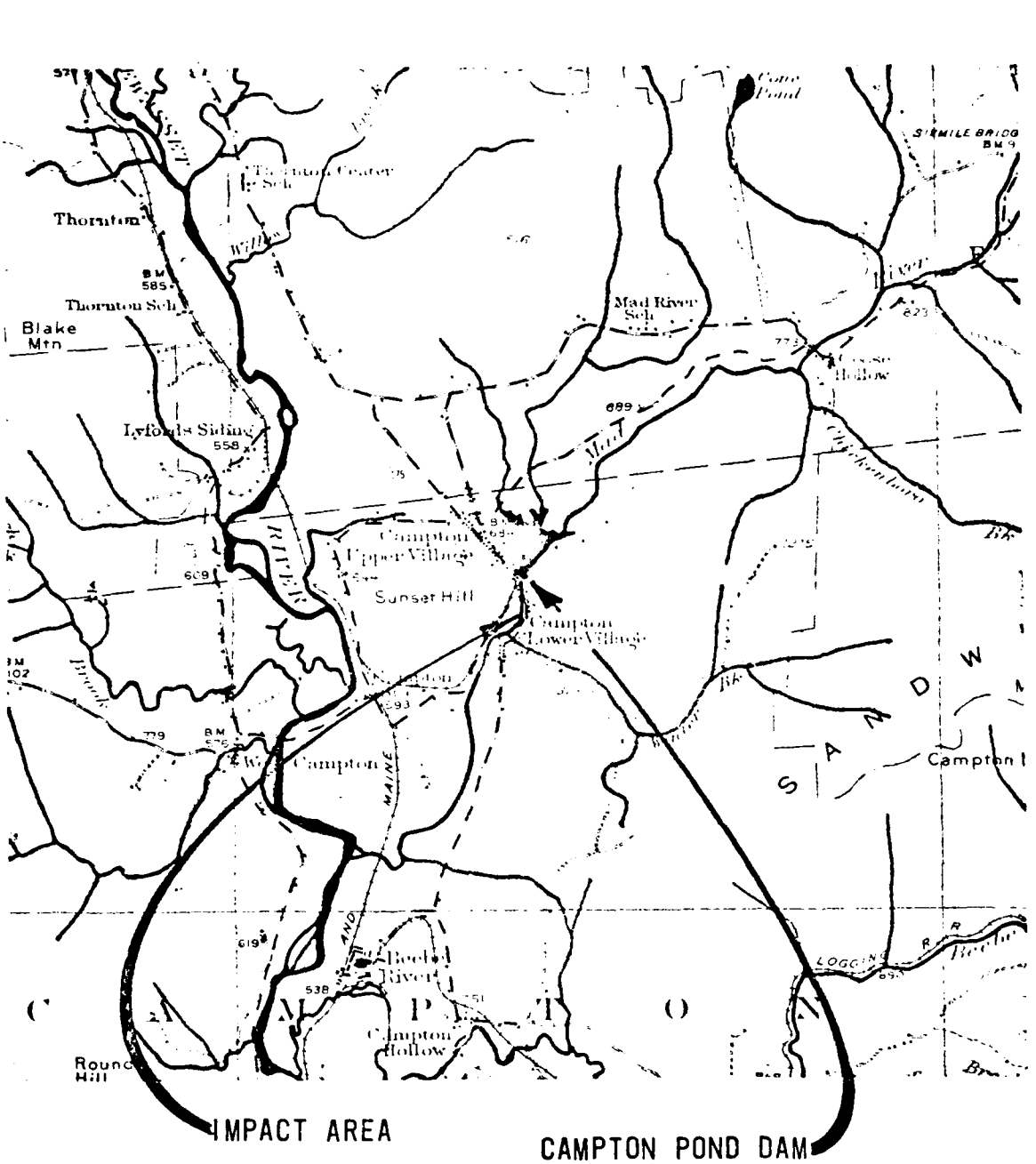
OVERVIEW OF
CAMPTON POND DAM
CAMPTON, NEW HAMPSHIRE



SOURCE:
USGS QUADRANGLE
PLYMOUTH, N.H. 1928
1"=5208'

DUFRESNE-HENRY ENGINEERING CORP. ARCHITECT-ENGINEER	U.S. ARMY ENGINEER DIV. NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS.

NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS

LOCATION MAP

CAMPTON POND DAM

CLIENT NO.	04-0088		SCALE 1" = 1 MILE
ENGR.	JD		DATE

NATIONAL DAM INSPECTION PROGRAM
PHASE I INSPECTION REPORT
NAME OF DAM: CAMPTON POND

SECTION 1 - PROJECT INFORMATION

1.1 General

a. Authority

Public Law 92-367, August 8, 1972, authorized the Secretary of the Army, through the Corps of Engineers, to initiate a National Program of Dam Inspection throughout the United States. The New England Division of the Corps of Engineers has been assigned the responsibility of supervising the inspection of dams within the New England Region. Dufresne-Henry Engineering Corporation has been retained by the New England Division to inspect and report on selected dams in the State of New Hampshire. Authorization and notice to proceed were issued to Dufresne-Henry Engineering Corporation under a letter of November 20, 1978 from Max B. Scheider, Colonel, Corps of Engineers. Contract No. DACW33-79-C-0010 has been assigned by the Corps of Engineers for this work.

b. Purpose

(1) Perform technical inspection and evaluation of non-federal dams to identify conditions which threaten the public safety and thus permit correction in a timely manner by nonfederal interests.

(2) Encourage and prepare the states to initiate quickly effective dam safety programs for nonfederal dams.

(3) To update, verify and complete the National Inventory of Dams.

1.2 Description of Project

a. Location

The Campton Pond Dam is located at 43°51.7' north latitude and 71°38.0' west longitude in central New Hampshire in the Town of Campton, Grafton County. The dam is on the Mad River which is tributary to the Pemigewasset River which is in turn tributary to the Merrimack River.

b. Description of Dam and Appurtenances

The dam consists of three types of structures. Beginning from the left abutment they are: an earth dike with upstream

masonry retaining wall; a short section of concrete dike; and a concrete run-of-the-river type dam (main dam). The dam has an overall length of 300 feet and has a maximum height of 39 feet at the main spillway.

c. Size Classification

The Campton Pond Dam has a maximum height of 39 feet and a maximum storage of 650 acre-feet. United States Corps of Engineers (USCE) guidelines place dams with maximum heights between 25 and 40 feet and maximum storage between 50 and 1000 acre-feet in the small category. Therefore the size classification of the Campton Pond Dam is small.

d. Hazard Classification

A failure of the Campton Pond Dam would route a flood wave into the lower channel of the Mad River. The flood wave would impact one residence and an old factory which is being renovated, resulting in significant economic damage and possible loss of life. Approximately one mile downstream, in the Town of Campton Station, the river passes within 300 feet of a trailer park. Although this area would most likely be flooded during a major storm, the additional flow due to a dam failure may cause additional economic damage and possible loss of life. The hazard classification is therefore significant.

e. Ownership

The present owner of the Campton Pond Dam is:

United States Forest Service
Main Street
P.O. Box 638
Laconia, New Hampshire 03246

Telephone: 603-524-6450

f. Operator

The operation of the dam is under the supervision of the forest supervisor:

Mr. Leonard Houston

g. Purpose

The dam was constructed for public recreation purposes.

h. Design and Construction History

The original dam at this site was a log crib dam constructed in 1892 by the Winnepesaukee Paper Company and was used for hydroelectric power. This dam was reported to have been washed out in the 1927 flood and reconstructed shortly thereafter. In the early 1930's the dam ceased its hydroelectric operations. In order to preserve the reservoir, the U. S. Forest Service took over the site and constructed a concrete replacement dam in 1935.

The dam itself has remained relatively unchanged since its initial construction. In 1969 a State highway project breached the right concrete abutment, lowering it by approximately four feet.

In order to maintain the maximum capacity of the spillway, a temporary stop log closure was constructed which would be set in place only during a major flood threat (see Photo 6).

During the June 30, 1973 flood a leak developed through the left abutment wall upstream of the dam. In 1978 a concrete cut-off wall was constructed along the upstream face of the abutment wall effectively sealing the leak. The new wall can be seen in Photo 3.

i. Normal Operating Procedures

Since the dam impounds water for recreational purposes there are no routine operating procedures other than periodic inspections and maintenance by the Forest Service. During the threat of major flooding, the dam is continually monitored by Forest Service and Public Works personnel in the event that the stop log structure across Waterville Road (Route 49) is required.

Although the dam was designed for 3-foot flashboards, they are not being used at the present time.

1.3 Pertinent Data

a. Drainage Area

The drainage basin above Campton Pond includes approximately 58 square miles with land in two counties and five towns. Most of the land is undeveloped mountain terrain within the White Mountain National Forest. Elevations vary from a low of 647 at Campton Pond to a high of 4000 along the mountain ridges. The average slopes are very steep and runoff due to rainfall and snowmelt is rapid and sometimes unpredictable.

b. Discharge at the Dam Site

(1) Outlet Works

The only discharge at the dam site other than the spillway is a 30-inch diameter sluice gate. The manual gate operator is located on a concrete service platform on the left side of the dam (see Photo 1). The sluice gate has a capacity of 103 CFS with the water level at the spillway crest; 126 CFS at the top of dam.

(2) Maximum Known Flood at Dam Site

The maximum known flood at the dam site occurred in early October 1959 when a three-day storm struck the New England area. Total rainfall intensities varied from 6 to 10 inches in the White Mountain area. The flow over the Campton Pond spillway reached a maximum height of 8 feet which represents a discharge of approximately 13,000 CFS. (See special report in Appendix B.) Other storms of high magnitude occurred in 1927, 12,000 CFS and 1938, 8,000 CFS.

(3) Spillway Capacity

The Campton Pond spillway is a 151.3-foot long ogee spillway with a maximum height of 9 feet. During the highway construction of 1969 the right abutment was breached. The elevation of the road surface is 652.2 reducing the maximum height (without overtopping) to 5.2 feet. The breach in the right abutment is equipped so that a stop log closure can be installed in the event of a flood threat. The maximum capacity of the spillway without the stop logs in place is approximately 7,000 CFS. With the stop logs in place the capacity increases to approximately 16,000 CFS.

c. Elevations

	Feet above MSL
Streambed at centerline of dam (estimated)	617 ±
Maximum tailwater	Not known
Recreation pool	647.5 ±
Full flood control pool	Not applicable
Spillway crest	647.00
Design surcharge	656.00
Top of dam	656.00
Test flood surcharge	659.50

d. Reservoir	Feet*
Length of maximum pool	3000
Length of recreation pool	2000
Length of flood control pool	Not applicable

e. Storage	Acre-feet*
Recreation	350
Flood control pool	Not applicable
Test flood pool	980
Spillway crest pool	350
Top of dam	650

f. Reservoir Surface	Acres*
Top of dam	60
Test flood pool	70
Flood control pool	Not applicable
Recreation pool	43
Spillway crest	43

g. Dam

(1) Type

a. Earth dike with stone masonry retaining wall. Approximate length of 120 feet.

b. Concrete dike section, approximate length of 30 feet.

c. Main concrete dam, run-of-the-river type, length of 151.3 feet.

(2) Length (overall)

300 feet.

*Estimated based on USGS topographic maps, overhead photographs and visual observations.

(3) Height

39 feet maximum.

(4) Top Width

Not applicable (ogee spillway).

(5) Side Slopes

Not applicable.

(6) Zoning

None known.

(7) Impervious Core

Concrete.

(8) Cutoff

Concrete wall in both abutments.

(9) Grout Curtain

Not applicable.

h. Diversion and Regulating Tunnel

Not applicable.

i. Spillway

(1) Type

Concrete ogee.

(2) Length

151.3 feet.

(3) Crest Elevation

647.00

(4) Gates

30" diameter outlet gate.

(5) Upstream Channel

Campton Pond.

(6) Downstream Channel

Mad River.

j. Regulating Outlet

The 30" diameter outlet gate operator is located on a concrete platform above the spillway (see Photo 1). The gate has been used in past years to regulate the water level of Campton Pond.

SECTION 2 - ENGINEERING DATA

2.1 Design

The Campton Pond Dam was designed by the United States Forest Service under the supervision of Perley M. Burnham. The design and subsequent construction were reviewed by Samuel J. Lord of the New Hampshire Public Service Commission.

The dam was designed as a replacement of a log crib dam which was originally constructed in 1892 and was utilized for hydroelectric power. The new dam is a solid concrete dam designed as a spillway for its entire width between abutments. An ogee spillway design was utilized.

2.2 Construction

The dam was constructed in 1935. There is very little data on file with the New Hampshire Water Resources Board of the actual construction.

In 1969 a State Highway project breached the right abutment core wall, lowering it by approximately four feet. The core wall was terminated level with the new roadway and equipped with stanchion supports so that a stop log structure could be erected across the roadway in the event of a flood threat (see Photo 6).

The left abutment wall experienced some significant leakage during the 1973 storm. This portion of the wall is constructed of stone masonry with a concrete top. The masonry joints apparently deteriorated to a point where leakage occurred during water levels in excess of the crest elevation. The condition was corrected in 1978 with the construction of a 2-foot thick concrete facing on the upstream side of the wall (see Photo 3).

2.3 Operation

Since the dam impounds water for recreational purposes there are no established operation procedures other than periodic inspection and maintenance.

The outlet gate was used in the mid-1970s to control the water level in order to minimize the leakage through the left abutment wall. Since this condition has been corrected the gate is no longer utilized on a regular basis.

2.4 Evaluation

a. Availability

The design and construction drawings for this dam are on file with the U. S. Forest Service.

b. Adequacy

Based on visual observations and available engineering data, the information is sufficient for a Phase I inspection.

c. Validity

The available engineering data are considered valid on the basis of the visual inspection.

SECTION 3 - VISUAL INSPECTION

3.1 Findings

a. General

The on-site inspection of the Campton Pond Dam was performed on May 2, 1979. The dam was found to be in good condition.

At the time of inspection, the water level in the reservoir was 8 feet 2 inches below the top of the left training wall. Photo 2 illustrates the flow conditions at the time of the inspection.

b. Dam

The dam consists of three types of structures. Beginning from the left abutment they are: an earth dike with upstream masonry retaining wall; a short section of concrete dike (training wall); and a concrete run-of-the-river type dam.

(1) Earth Dike with Upstream Training Wall

Photo 3 illustrates the earth dike. Due to seepage through the dike, the Forest Service installed a drain system on the downstream side of the dike in 1977 and constructed an 8-foot deep concrete cutoff wall on the upstream side of the masonry retaining wall in 1978. At the time of inspection, the dike showed no signs of leakage. It could not be ascertained whether there was any discharge from the downstream drain because the drain connects with a culvert that also contains the flow from a stream.

(2) Concrete Dike (Training Wall)

The concrete dike connects the earth dike with the main dam. Apart from minor spalling of concrete from the downstream face, the dike remains in good condition.

(3) Main Dam

The main dam consists of a concrete run-of-the-river type dam with a 30-inch diameter outlet gate controlled from a concrete superstructure. There are provisions for a stop log system along the crest of the dam. The dam spillway spans a natural stream channel in bedrock as evidenced by the natural stream below, illustrated in Photos 1 and 8. The concrete of the dam, as it can be observed through the flowing water, appears in good condition (see Photo 2).

Both left and right sides of the downstream channel include concrete and masonry retaining walls which support paved roadways. Photo 5 illustrates the left downstream retaining wall as viewed from the gate structures. As the photo indicates, bedrock provides foundations for the wall. The rock strikes almost perpendicular to the dam and dips approximately 70° toward the stream (west). The angularity of the rock surfaces indicates stable foundation material. Photo 4 illustrates the right downstream retaining wall. As the photo indicates, the wall also rests on bedrock. The masonry section of the wall rests on a concrete foundation poured on rock. The rock strikes almost perpendicular to the dam and dips approximately 85° toward the stream (east). Considerable spalling is occurring at both the concrete footing and the concrete-rock interface, but should not impair its stability. Similarly, some minor spalling of concrete is also evident around the construction joints in the concrete section of the wall near the dam. Some small local depressions in the ground surface behind the wall indicate some consolidation of the backfill probably has occurred. No openings in the wall were observed that could have produced loss of backfill through the wall. There is no apparent tilting of the wall.

Route 49, which traverses the west bank of Campton Pond, crosses the right abutment of the dam at an elevation a few feet below the top of the dam. To prevent the road from becoming an "emergency spillway" the highway department installed provisions for an emergency stop log type dam across the road. Photo 6 illustrates the foundation and key for the emergency dam as viewed from the right training wall of the spillway.

c. Appurtenant Structures

Photo 7 illustrates the condition of the outlet gate control superstructure. Water flowing over the dam precluded insepction of the outlet pipe, but all exposed concrete appears in good condition.

d. Reservoir Area

The reservoir area is known as Campton Pond and has existed since 1890 when the original dam was constructed. As shown on the overhead photo, the reservoir has undergone major siltation since its original formation. Several islands have been formed by the sediment load deposited by the Mad River. In 1969 Route 49 was constructed along the right bank of Campton Pond. The strip of reservoir bank between the road and water level is stone riprap.

e. Downstream Channel

The downstream channel consists of the natural river bed of the Mad River. The river banks immediately downstream of the dam are formed by concrete and stone retaining walls which support paved roadways. Approximately 150 feet downstream of the dam, the channel is spanned by a concrete arch highway bridge.

3.2 Evaluation

On the basis of the visual inspection, the dam is judged to be in good overall condition. The water level in Campton Pond at the time of inspection did not permit evaluation of the effectiveness of cutoff wall recently constructed on the upstream side of the left earth dike.

SECTION 4 - OPERATIONAL PROCEDURES

4.1 Procedures

Since the dam and reservoir are being used for passive recreation the dam is not operated according to established procedures.

4.2 Maintenance of Dam

The existing maintenance of the dam consists of periodic inspections and repairs as required, including general clean-up and removal of debris.

4.3 Maintenance of Operating Facilities

The outlet gate is maintained in good operating condition and has been used in recent years to regulate the pond level.

4.4 Description of Warning System in Effect

The flow over the Campton Pond Dam is monitored by U.S.C.E. gauge No. 39, located along the left abutment. The flow data is transmitted via radio directly to the U.S.C.E. reservoir control headquarters in Waltham, Massachusetts. In the event of major flood flow predictions, the appropriate civil defense personnel would be notified.

On the local level, the dam is monitored by local Public Works and Forest Service personnel during major rainfall so that the stop log structure across Route 49 can be erected in the event of a flood threat.

4.5 Evaluation

The visual inspection and review of the file data indicates that the operation and maintenance of this dam is more than adequate. A formal written procedure for the installation of the highway stop logs should be established.

SECTION 5 - HYDRAULIC AND HYDROLOGIC EVALUATION

5.1 Evaluation of Features

a. General

The Campton Pond Dam is a concrete run-of-the-river type dam. It is a low surcharge storage-high spillage dam designed for continuous overtopping. The concrete spillway of ogee section is 151.3 feet long and is 9 feet below the top of the abutments.

b. Design Data

There is no design data available for the Campton Pond Dam. Hydraulic/hydrologic calculations were based on field measurements.

c. Experience Data

From the records available, there is no known incident when the Campton Pond Dam was overtopped. However, in a localized storm of 1959 the water level was within 1 foot of overtopping, (8 feet above crest elevation). The flow was estimated at 13,000 CFS. Another significant flow was during the 1927 flood during which an estimated flow of 12,000 CFS was recorded.

d. Visual Observations

The visual inspection of the dam revealed it to be generally in good condition. The sluice gate for the 30-inch low-level outlet was in good operable condition. The stop log key way runs from the right abutment across Route 49 and partially up the slope beyond. It appeared in good condition also. The rough downstream channel is a natural stream bed carved into ledge rock formations. As can be seen from the overview photo, the upstream channel has been substantially filled with silt, which reduces the effective storage of the dam considerably.

e. Test Flood Analysis

Based on a size classification of small and a hazard classification of significant, the test flood was selected to be one-half the probable maximum flood (1/2 PMF). The test flood was developed, using the computer program HEC-1 from the U.S. Army Corps of Engineers and was found to be 30,900 CFS (536 CSM). This inflow was not adjusted for surcharge storage as this is a run-of-the-river type dam, with low storage capacity and therefore test flood outflow equals test flood inflow. During the test flood, assuming the stop logs were installed across Route 49, there would be 3.5 feet of water flowing over the

top of the abutments. This would mean 12.5 feet of water above the spillway crest elevation. If, however, the stop logs were not installed across Route 49, the road would act as an emergency spillway. The majority of the water flowing down Route 49 would re-enter the channel immediately downstream of the bridge, approximately 200 feet below the dam. Without the stop logs in place during the test flood, approximately 3.2 feet of water would flow over the top of the abutments. This would be 12.2 feet above the spillway crest elevation. It is apparent that the placement of the stop logs would have little effect during a flood as severe as the test flood. The spillway has a capacity of 15,932 CFS, with the stop logs in place, which is 52 percent of the test flood.

f. Dam Failure Analysis

If the Campton Pond Dam were to fail under normal conditions, a 17-foot wave would be released. The flow would be approximately 13,500 CFS. The flood wave would be contained within the channel until it reached a point approximately 900 feet downstream of the dam. At this location a house and a mill are located along the left bank. The house which sits on the river bank would be undermined and probably destroyed. The mill would have water up to the ground floor and would be susceptible to serious undermining also.

With the water level at the top of the dam, elevation 656.0, the flow within the river would be 15,900 CFS. A failure of the dam with water at this stage would release an additional 14,700 CFS, for a total flow of 30,600 CFS at the instant of failure. Due to the relatively close locations of the house and the mill downstream of the dam, the initial flow of 30,600 CFS would only be reduced to a flow of 30,300 CFS at these points. From rating curves developed for several cross sections downstream of the dam, water elevations can be determined at the mill location. For a dam failure and a flow of 30,300 CFS the water level at the mill would be approximately 5 feet above the ground floor of the mill and about 3 feet above the road adjacent to the mill as opposed to the flood conditions prior to failure which would be 4 feet lower. The house just upstream of the mill would be undermined and seriously damaged, with possible loss of life. The mill would also be seriously undermined and flooded, sustaining major damage. Approximately 2 miles downstream of the dam a trailer park is located about 10 feet above the normal water elevation of the river. Although this area would probably be flooded during the 1/2 PMF from the Pemigewasset River, it would appear that some additional damage may result from a dam failure to the trailer park. A more intensive study would have to be performed to determine how severe the damage would be. Still the hazard classification of the dam is significant due to the location of the house and the mill and potential for high economic damage and possible loss of life.

SECTION 6 - STRUCTURAL STABILITY

6.1 Evaluation of Structural Stability

a. Visual Observations

Visual observation of the dam and appurtenances did not disclose any stability problems.

b. Design and Construction Data

The available data concerning design, construction and existing structural condition was not sufficient for a formal stability analysis.

c. Operating Records

The operating records include reference to leakage of the left abutment and breaching of the right abutment by road construction. Post-construction changes discussed below apparently have eliminated these problems.

d. Post-Construction Changes

Post-construction activities include several changes in dam characteristics and surrounding topography, including: complete dam reconstruction in 1934-1935 (from wood to concrete); rerouting of adjacent Route 49 in 1969 which breached the right abutment; clearing of trees on the left abutment; erection of a stop log structure over the road at the right abutment in 1970; installation of an underdrain on the downstream side of the earth dike in 1977; and construction of a concrete cutoff wall on the upstream side of the earth dike.

e. Seismic Stability

The dam is located in Seismic Zone 2 and in accordance with the recommended Phase I guidelines does not warrant seismic analysis.

SECTION 7 - ASSESSMENT, RECOMMENDATIONS/ REMEDIAL MEASURES

7.1 Dam Assessment

a. Condition

On the basis of visual inspection and a review of available data, the dam appears in fair condition because of the limited spillway capacity.

b. Adequacy of Information

The available information proved sufficient for a Phase I inspection, but not for a complete analysis of dam stability.

c. Urgency

The recommendations presented in Sections 7.2 and 7.3 should be instituted within one year of the receipt of this report.

d. Need for Additional Investigations

The dam requires no further investigation.

7.2 Recommendations

The following recommendations should be performed under the guidance of a qualified professional engineer.

1. Observe the performance of the earth dike during high water conditions.

2. Investigate the need for increased spillway capacity.

3. Establish formal written procedures for installing the highway stop logs and for evacuating downstream residents in the event of an impending dam failure.

7.3 Remedial Measures

The following remedial measures should be undertaken:

1. Institute a program of annual periodic technical inspections. Inspections should be performed during low water conditions and concentrate on the condition of the concrete spillway, seepage or undermining and the pond outlet works.

2. Repair the spalling concrete.

7.4 Alternatives

Not applicable.

APPENDIX A

VISUAL INSPECTION CHECK LIST

VISUAL INSPECTION CHECK LIST
PARTY ORGANIZATION

PROJECT CAMPTON POND DAM

DATE May 2, 1979

TIME _____

WEATHER _____

W.S. ELEV. _____ U.S. ____ DN.S.

PARTY:

1. Walter A. Henry D-H
2. James A. Dohrman D-H
3. Wayne A. Leonard D-H
4. Gonzalo Castro GEI
5. Roger Gardner GEI
6. Forest Service Representative
7. Ken Stearns, New Hampshire Water Resources Board
8. _____
9. _____
10. _____

PROJECT FEATURE	INSPECTED BY	REMARKS
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

PERIODIC INSPECTION CHECK LIST

PROJECT CAMPTON POND DAM **DATE** May 2, 1979

PROJECT FEATURE _____ **NAME** _____

DISCIPLINE _____ **NAME** _____

AREA EVALUATED	CONDITION
DAM SECTION	
Crest Elevation	647
Current Pool Elevation	647.8
Maximum Impoundment to Date	
Surface Cracks	Could not observe - water flowing over dam
Pavement Condition	Not applicable.
Movement or Settlement of Crest	Not applicable.
Lateral Movement	None observed.
Vertical Alignment	Good.
Horizontal Alignment	Good.
Condition at Abutment and at Concrete Structures	Good.
Indications of Movement of Structural Items on Slopes	Not applicable.
Trespassing on Slopes	Not applicable.
Sloughing or Erosion of Slopes or Abutments	Not applicable.
Rock Slope Protection - Riprap Failures	Not applicable.
Unusual Movement or Cracking at or Near Toes	Not applicable.
Unusual Embankment or Downstream Seepage	Not applicable.
Piping or Boils	Not applicable.
Foundation Drainage Features	Not applicable.
Toe Drains	Not applicable.
Instrumentation System	USCE gauging station.

PERIODIC INSPECTION CHECK LIST

PROJECT CAMPTON POND DAM **DATE** May 2, 1979

PROJECT FEATURE _____ **NAME** _____

DISCIPLINE _____ **NAME** _____

AREA EVALUATED	CONDITION
OUTLET WORKS - CONTROL TOWER	OUTLET GATE CONTROL
a. Concrete and Structural	
General Condition	Good.
Condition of Joints	Good.
Spalling	None.
Visible Reinforcing	None.
Rusting or Staining of Concrete	None observed.
Any Seepage or Efflorescence	None observed.
Joint Alignment	Good.
Unusual Seepage or Leaks in Gate Chamber	Flooded with water, could not observe.
Cracks	None observed.
Rusting or Corrosion of Steel	None.
b. Mechanical and Electrical	
Air Vents	Not applicable (open platform).
Float Wells	Not applicable.
Crane Hoist	Not applicable.
Elevator	Not applicable.
Hydraulic System	Not applicable.
Service Gates	Manual gate operator.
Emergency Gates	Not applicable.
Lightning Protection System	None.
Emergency Power System	None.
Wiring and Lighting System in Control Chamber	Not applicable.

PERIODIC INSPECTION CHECK LIST

PROJECT CAMPTON POND DAM **DATE** May 2, 1979

PROJECT FEATURE _____ **NAME** _____

DISCIPLINE _____ **NAME** _____

AREA EVALUATED	CONDITION
OUTLET WORKS - TRANSITION AND CONDUIT	
General Condition of Concrete	(Could not observe, buried in concrete section.)
Rust or Staining on Concrete	
Spalling	
Erosion or Cavitation	
Cracking	
Alignment of Monoliths	
Alignment of Joints	
Numbering of Monoliths	

PERIODIC INSPECTION CHECK LIST

PROJECT CAMPTON POND DAM **DATE** May 2, 1979

PROJECT FEATURE _____ **NAME** _____

DISCIPLINE _____ **NAME** _____

AREA EVALUATED	CONDITION
OUTLET WORKS - OUTLET STRUCTURE AND OUTLET CHANNEL	Discharge into natural rock stream channel.
General Condition of Concrete	
Rust or Staining	
Spalling	
Erosion or Cavitation	
Visible Reinforcing	
Any Seepage or Efflorescence	
Condition at Joints	
Drain Holes	
Channel	
Loose Rock or Trees Overhanging Channel	
Condition of Discharge Channel	

PERIODIC INSPECTION CHECK LIST

PROJECT CAMPTON POND DAM **DATE** May 2, 1979

PROJECT FEATURE _____ **NAME** _____

DISCIPLINE _____ **NAME** _____

AREA EVALUATED	CONDITION
OUTLET WORKS - SPILLWAY WEIR, APPROACH AND DISCHARGE CHANNELS	
a. Approach Channel	
General Condition	Good.
Loose Rock Overhanging Channel	None.
Trees Overhanging Channel	None.
Floor of Approach Channel	Natural river bed.
b. Weir and Training Walls	
General Condition of Concrete	Good.
Rust or Staining	Minor.
Spalling	Minor.
Any Visible Reinforcing	None.
Any Seepage or Efflorescence	Minor.
Drain Holes	None observed.
c. Discharge Channel	
General Condition	Good.
Loose Rock Overhanging Channel	None.
Trees Overhanging Channel	None.
Floor of Channel	Natural river channel, ledge rock.
Other Obstructions	None.

PERIODIC INSPECTION CHECK LIST

PROJECT CAMPTON POND DAM **DATE** May 2, 1979

PROJECT FEATURE _____ **NAME** _____

DISCIPLINE _____ **NAME** _____

AREA EVALUATED	CONDITION
OUTLET WORKS - INTAKE CAHNNEL AND INTAKE STRUCTURE	
a. Approach Channel	
Slope Conditions	
Bottom Conditions	
Rock Slides or Falls	
Log Boom	
Debris	
Condition of Concrete Lining	
Drains or Weep Holes	
b. Intake Structure	
Condition of Concrete	
Stop Logs and Slots	

PERIODIC INSPECTION CHECK LIST

PROJECT CAMPTON POND DAM DATE May 2, 1979

PROJECT FEATURE _____ NAME _____

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
OUTLET WORKS - SERVICE BRIDGE	Concrete Bridge to Outlet Gate Operator
a. Super Structure	
Bearings	Good.
Anchor Bolts	Not applicable.
Bridge Seat	Good.
Longitudinal Members	Good.
Under Side of Deck	Concrete, good condition.
Secondary Bracing	Not applicable.
Deck	Concrete, good condition.
Drainage System	Not applicable.
Railings	Good.
Expansion Joints	None observed.
Paint	Good.
b. Abutments and Piers	
General Condition of Concrete	Good.
Alignment of Abutment	Good.
Approach to Bridge	Good, steel ladder.
Condition of Seat and Backwall	Good.

PERIODIC INSPECTION CHECK LIST

PROJECT CAMPTON POND DAM **DATE** May 2, 1979

PROJECT FEATURE _____ **NAME** _____

DISCIPLINE _____ **NAME** _____

AREA EVALUATED	CONDITION
RESERVOIR	
Stability of Shoreline	Some fallen trees and floating debris.
Sedimentation	Extensive - see overhead photo.
Changes in Watershed Runoff Potential	None known.
Upstream Hazards	None observed.
Downstream Hazards	Several buildings, one residence, trailer park.
Alert Facilities	USCE gauge - transmitted to USCE in Waltham.
Hydrometeorological Gauges	Yes - rapid transmitter.
Operational and Maintenance Regulations	Routine inspection by Forest Service, visual monitoring during major storms.

PERIODIC INSPECTION CHECK LIST

PROJECT CAMPTON POND DAM **DATE** May 2, 1979

PROJECT FEATURE _____ **NAME** _____

DISCIPLINE _____ **NAME** _____

AREA EVALUATED	CONDITION
DIKE EMBANKMENT	
Crest Elevation	~ 656.
Current Pool Elevation	647.8
Maximum Impoundment to Date	See dam section.
Surface Cracks	None visible.
Pavement Condition	Not applicable.
Movement or Settlement of Crest	None visible.
Lateral Movement	None visible.
Vertical Alignment	Too irregular to judge.
Horizontal Alignment	Too irregular to judge.
Condition at Abutment and at Concrete Structures	Good.
Indications of Movement of Structural Items on Slopes	None visible.
Trespassing on Slopes	None.
Sloughing or Erosion of Slopes or Abutments	None.
Rock Slope Protection - Riprap Failures	None.
Unusual Movement or Cracking at or Near Toes	None.
Unusual Embankment or Downstream Seepage	None.
Piping or Boils	None.
Foundation Drainage Features	
Toe Drains	Underdrain downstream of dike.
Instrumentation System	Water gauging station.
Vegetation	Grass.

APPENDIX B

PROJECT RECORDS AND PLANS

A. Listing of design, construction and maintenance records:

1. New Hampshire Public Service Commission design questionnaire-statement, April 22, 1934.

2. Letter to New Hampshire Public Service Commission from Forest Service, May 21, 1934.

3. Data sheet on 1938 flood.

4. Report on 1959 flood from Forest Service.

B. Copies of Past Inspection Reports:

1. Inspection by New Hampshire Water Resources Board, August 1, 1936.

2. Dam record from Public Service Commission, July 21, 1936.

3. Data tabulation by New Hampshire Water Control Commission, October 31, 1938.

4. Inspection memo, November 3, 1969.

5. Inspection letter to Forest Service, December 30, 1969.

6. Inspection memo, July 17, 1973.

7. Inspection letter to Forest Service, February 10, 1977.

C. Listing of Plans:

1. Campton Pond Dam - Plan and Section.

New Hampshire Public Service Commission

QUESTIONNAIRE - STATEMENT

Concerning Mills and their repairs, Dams and Flowage

Chapter 218, Public Laws of New Hampshire

RECEIVED
APR 13 1934
N. H. Public Service Commission

LOCATION

1. In what town? Campton, N. H.

2. On what stream? Mad River.

3. Give location definite as possible by description and by indication on plan or map Campton Pond, shown on attached map.

ERECTION:

4. Is it proposed to erect a new dam on a new location? No.

5. Is is proposed to erect a new dam on a location previously occupied? Yes.

REPAIRS:

6. Is it proposed to make minor repairs (repairs that can be made without lowering the pond level, diverting flow and interfering with operation)? If possible will construct new dam on the down stream side of present dam; old dam will remain as is.

RECONSTRUCTION:

7. Is it proposed to make major repairs, (requiring a lowering of pond level, diverting flow and interfering with operation)?

8. Is it proposed to increase the height of the dam permanently? No.

9. Is it proposed to increase the height of the dam by flashboards? No.

20. Power ( )

21. Recreation

(a) Private ( )

(b) Commercial ( )
Public ------ XX

22. Transportation ( )

DIMENSIONS:

23. What is or will be the area of the pond created by the dam? 38 acres.

24. What is or will be the length of the pond from the dam upstream? 2,300 feet.

25. What is or will be the length of the dam? 153 feet.

26. What is or will be the height of the dam above the bed of the stream? 35 feet.

27. What is or will be the length and depth of the spillway? 5 feet by 150 feet.

28. What is or will be the number and size of openings? one gate, 2 feet.

MATERIALS:

29. Of what materials is the dam constructed? Timber.

30. Of what materials will the dam be constructed? Concrete.

31. What is the nature of the foundation where or upon which the dam is or will be built? (Ledge - hardpan - sand gravel - clay - etc. and extent)? 90% Ledge.

TIME:

32. When will the job be begun? April 23, 1934.

33. When will the job be completed? October 1934.

NS AND SPECIFICATIONS:

Submit plans (plan, elevations, cross sections) of dam, giving information as to foundations, showing dimensions, etc.

SONNEL:

Who will be Engineer?

Name Perley M. Burnham

Address U. S. Forest Service, Laconia, N. H.

Who will be contractor or constructor?

Name U. S. Forest Service

Address Laconia, N. H.

KS: Plans and specifications will be submitted as soon as they are drawn, which is being done by our Washington Office.

te :

April 10, 1934.

Signed: M. A. MATTOON, Forest Supervisor.

By: P. M. Burnham, Acting.
P. M. Burnham.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
WHITE MOUNTAIN NATIONAL FOREST

RECEIVED
MAY 22 1934
N. H. Public Service Commission

ADDRESS REPLY TO
FOREST SUPERVISOR
AND REFER TO
E-Dams
Campton Dam
White Mtn.

LACONIA, NEW HAMPSHIRE
May 21, 1934

New Hampshire Public Service Commission

Concord, New Hampshire

Gentlemen: Attention Mr. Lord

I am enclosing one blue brint of each drawing number M-8601 topographic map of Campton Dam site showing location of new dam and drawing M-8604 showing cross section or profile of proposed concrete gravity dam. There is also enclosed one copy of "Specifications for Minor Road Construction" containing on pages 15 to 25 specifications for concrete.

The dam is to be designed for surcharge of 10 feet and resultant pressure falls within the middle third, assuming an upward pressure at the heel of P/2. You will note that the entire section from Station 81 to 233 has been utilized as overflow or spillway section, thereby increasing the spillway capacity over what was provided by the old dam. With the proposed spillway crest elevation of 112 ft., the spillway will have a capacity of approximately 13,000 second feet, with water elevation of 121 feet, which is the elevation reached by the 1927 flood. This is a 4,000 second feet greater than the discharge of the 1927 flood as reported by the U. S. Geological Survey.

The dam is to have 3 ft. of flash boards designed to go out when the water reaches elevation of approximately 118 ft., so that the normal reservoir level will be elevation 115 ft. This is a reproduction of conditions existing with the old dam.

I will send you the plans for the gate and flash boards just as soon as I receive them from Washington.

I would appreciate it very much if you would give me authority to begin construction at once as the construction season is very short and it is necessary that this dam be completed by October, 1934.

If at any time you need any help from this office just call Laconia

906W and I will arrange to have Mr. Burnham our engineer call on you and discuss any questions that may come up.

Very truly yours,

M. A. MATTOON
Forest Supervisor

PMB:lg

d 11/2 a/a c

erson	
gren	✓
m to	
No.	

WATER CONTROL COMMISSION

STATE OF NEW HAMPSHIRE

1938 FLOOD

Concord, New Hampshire

October 26, 1938.

White Mountain Nat Forest
Laconia N H

RE: Compton Lake Dam. W. C. C. No 25.01

Gentlemen:

In order that we may determine the magnitude and extent of the flood of September 21-24 just passed, we are requesting the various dam owners in the State to supply us with the following information:

1. Was this dam injured? Ans. No

2. If so, to what extent? Ans.

3. Did all flashboards go out? Ans. No - Only one 6" section on this structure - Half that with head badly bent (i.e. pins be

4. What was the maximum height of water over the permanent crest of spillway? Ans. (Approx 6'0" 8,000 CFS

5. At what day and hour did the maximum flood height reach your dam? Ans. Between 3AM & 5AM Sept 21

6. Any other interesting information regarding the flood or rain fall may be given on the back of this sheet, or attach sheets.

Will you please return this letter with as much information as you can give us as promptly as possible. A self-addressed envelope is attached hereto.

We thank you for your cooperation.

Very truly yours,

Richard S. Holmgren

Richard S. Holmgren -
Chief Engineer

CDC:GMB

Stevens

STORM DAMAGE

of

OCTOBER 23-25, 1959

White Mountain National Forest

New Hampshire

U. S. Forest Service

Eastern Region

December 1959

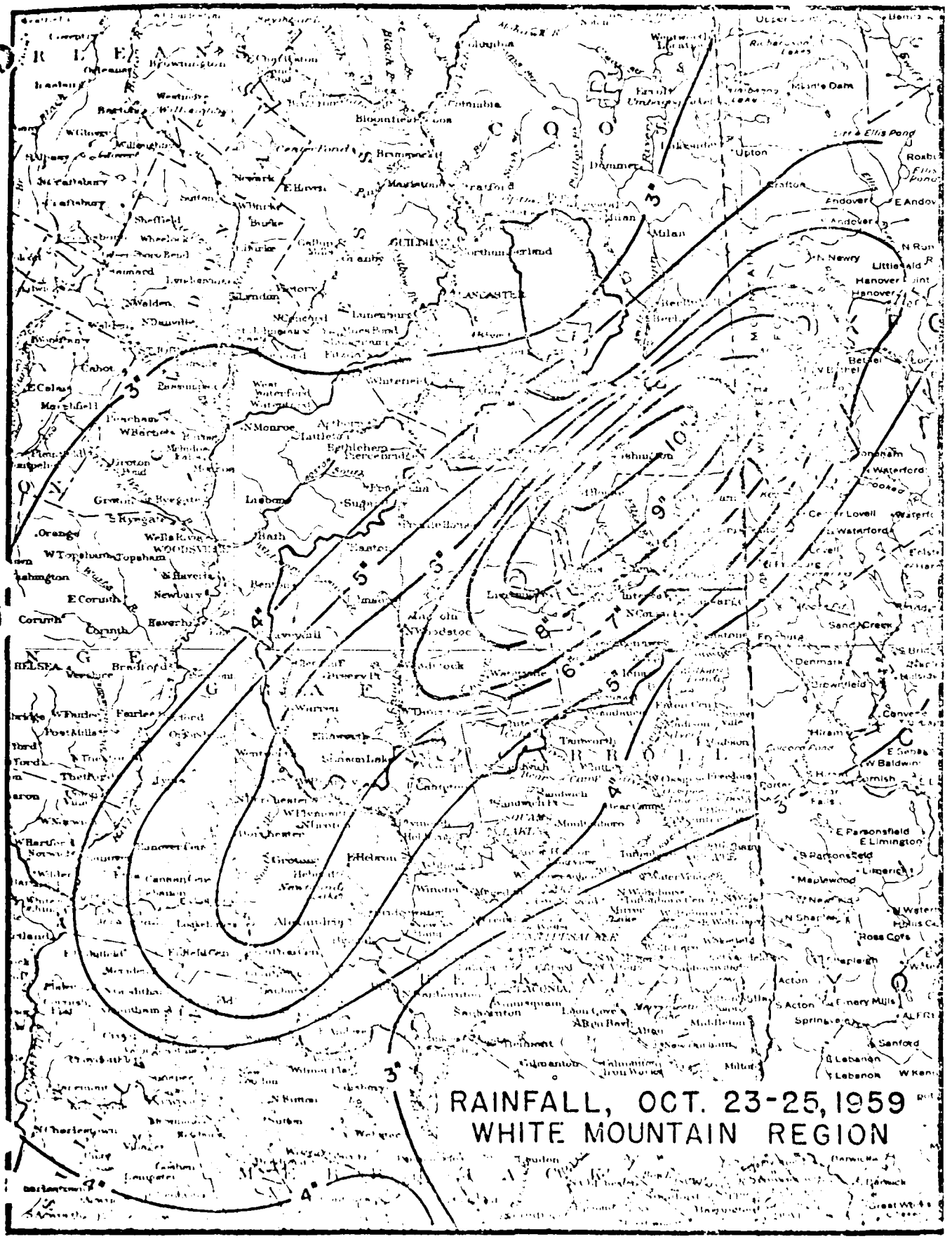


FIG. 1

THE STORM - Rainfall

Between the early morning of Friday, October 23 and noon on Sunday, October 25 a storm, centered over the White Mountains of New Hampshire, produced greater rainfall and runoff than had ever before been recorded at many stations in the area.

Although there were outlying centers of heavy rainfall in southern New Hampshire and western Maine, the area of very heavy precipitation was confined to a narrow belt extending from southwest to northeast across the White Mountain National Forest. - See Cover Map. The greatest recorded precipitation was 10.79 inches at Pinkham Notch. Of this, 8.0 inches fell between 4:00 A.M. and 6:00 P.M. on Saturday, October 24. - See Figure 2.

October was a month of heavy rainfall. From October 1 through 22 there had been nearly four inches of precipitation. It had rained eleven days out of twenty-two - four of these occurring in the ten days before the big storm. The slow, steady rain of October 23 soaked the soil to a nearly saturated condition. As a result, there was little storage capacity in the soil to contain the very heavy bursts of rainfall that occurred on October 24.

Runoff was very rapid and an unusually high proportion of Saturday's rainfall was converted to immediate runoff. This can be seen by comparing the times of rainfall at Pinkham Notch in Figure 2, and the concentration of runoff at Campton Pond Dam - Figure 3. Based on limited data, it is estimated that between 70 and 80 percent of the rain that fell on the Mad River drainage basin Saturday afternoon, ran off through the spillway at Campton Pond Dam within a period of ten hours.

The unusual intensity and behaviour of the storm is shown by the measured and estimated discharge rates of several streams within the area - (see Table 1). Even though some of these estimates are based on rather crude measurements, they indicate the violence of the storm. It is especially interesting to note that the measurements of high discharge on the Baker River and the record discharge on the Ammonoosuc River were made at gage points well outside the area of highest intensity rainfall. In each case the measurement represented runoff from only a part of the watershed. The figures for the East Branch Pemigewasset River, Mad River, and Wild River, all wholly within the area of high intensity, are probably more typical of actual stream behaviour within the major storm area.

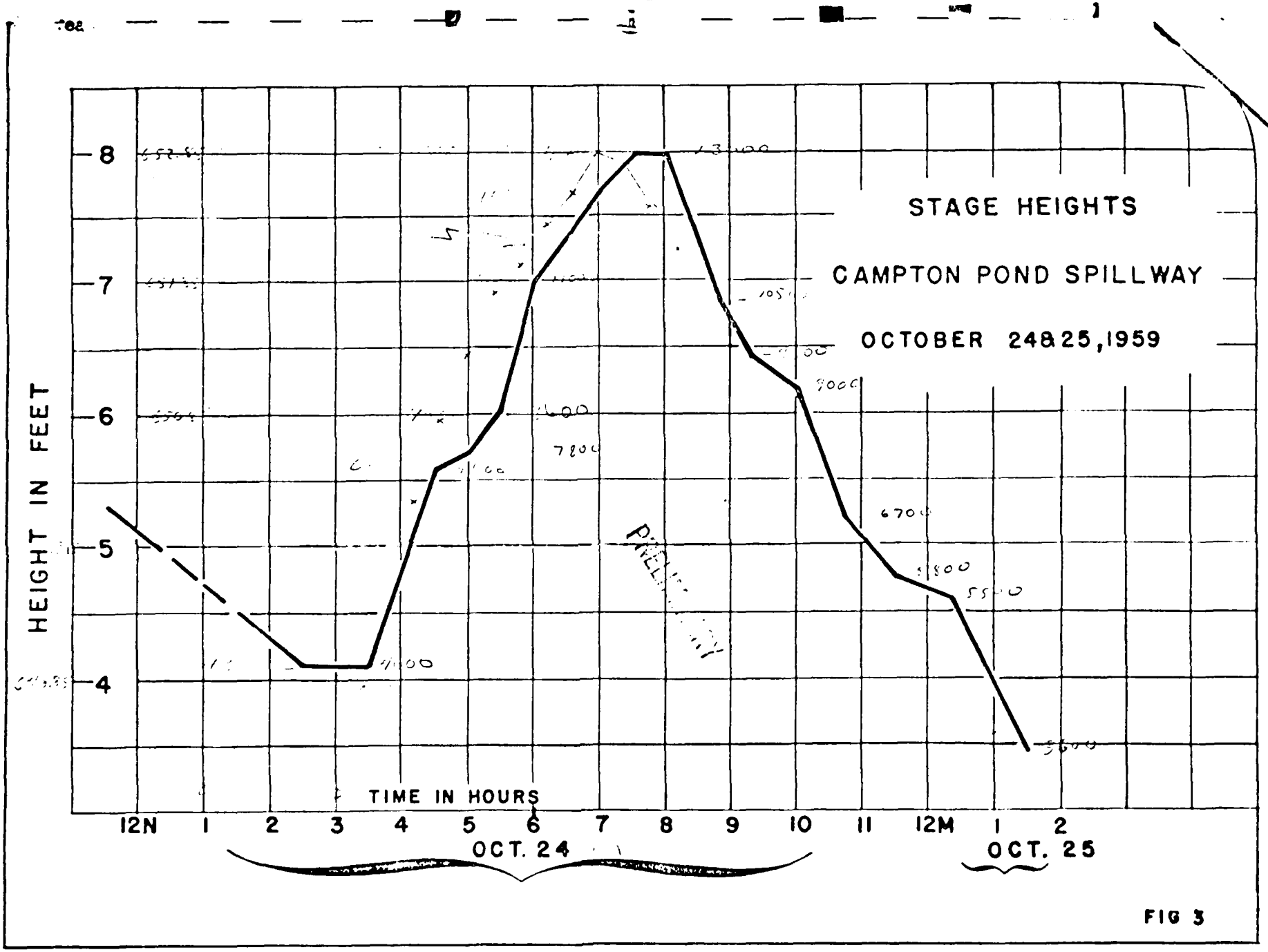

STAGE HEIGHTS
CAMPTON POND SPILLWAY
OCTOBER 24&25, 1959
HEIGHT IN FEET
8
7
6
5
4
TIME IN HOURS
12N
1
2
3
4
5
6
7
8
9
10
11
12M
1
2
OCT. 24
OCT. 25

FIG 3

NEW HAMPSHIRE WATER RESOURCES BOARD

INVENTORY OF DAMS AND WATER POWER DEVELOPMENTS

DAM

BASIN *Merrimack* NO. *1* *E-52?1*

RIVER *[illegible]* MILES FROM MOUTH ______ DRAINAGE AREA *57.6*

TOWN *Campton* OWNER *White Mt. Forest Reserve, Laconia*

LOCAL NAME OF DAM ______

BUILT *1934* DESCRIPTION *Gravity — Concrete on Ledge*

POND AREA-ACRES *28* DRAWDOWN-FT. ______ POND CAPACITY-ACRE FT. ______

HEIGHT-TOP TO BED OF STREAM-FT. *35* MAX. ______ MIN.

OVERALL LENGTH OF DAM-FT. *175* MAX. FLOOD HEIGHT ABOVE CREST-FT. ______

PERMANENT CREST ELEV. U.S.G.S. *642.0* LOCAL GAGE ______

TAILWATER ELEV. U.S.G.S. ______ LOCAL GAGE ______

SPILLWAY LENGTHS-FT. *150* [illegible] FREEBOARD-FT. *5* *(DAE)*

FLASHBOARDS-TYPE, HEIGHT ABOVE CREST *1?*

WASTE GATES-NO.	WIDTH	MAX. OPENING	DEPTH SILL BELOW CREST
1	*3.0 Dia.*	*→*	*18.0 ft. to ?*

REMARKS *[illegible]* *Highwater 1936 flood El. 653.5*

Campton Pond *" 1927 " El. [illegible]*

57 [illegible]

Co-ordinates from AE.
43°50' + 16,400 ft
71°40' − 8900 ft.

POWER DEVELOPMENT

UNITS	NO.	RATED HP.	HEAD FEET	C.F.S. FULL GATE	KW.	MAKE
			31			

USE *Recreation*

REMARKS *[illegible] . [illegible] dam at this site [illegible] Washed out 1927 flood. [illegible] pond 28 acres area – [illegible] size present pond. Old [illegible] present structure. [illegible] J. D. [illegible], Supt. Const. CCC camp Thornton. Plans present dam prepared by U.S. Dept Agriculture*

8/1/36 AE.

DATE *36*

PUBLIC SERVICE COMMISSION OF NEW HAMPSHIRE—DAM RECORD I-5201

TOWN	CAMPTON	TOWN NO. 1	STATE NO. 25
RIVER OR STREAM	Mad River - Campton Lake		
DRAINAGE AREA		POND AREA 38 Acres	
DAM TYPE	Gravity	FOUNDATION NATURE OF	Ledge
MATERIALS OF CONSTRUCTION	Concrete		
PURPOSE OF DAM	POWER—CONSERVATION—DOMESTIC—RECREATION—TRANSPORTATION—PUBLIC UTILITY		
HEIGHTS, TOP OF DAM TO BED OF STREAM	35'	TOP OF DAM TO SPILLWAY CRESTS	5'
SPILLWAYS, LENGTHS DEPTHS BELOW TOP OF DAM	150'	LENGTH OF DAM	153'
FLASHBOARDS TYPE, HEIGHT ABOVE CREST	1'		
OPERATING HEAD CREST TO N. T. W.	31'	TOP OF FLASHBOARDS TO N. T. W.	
WHEELS, NUMBER KINDS & H. P.			
GENERATORS, NUMBER KINDS & K. W.			
H. P. 90 P. C. TIME 100 P. C. EFF.		H. P. 75 P.C. TIME 100 P. C. EFF.	
REFERENCES, CASES, PLANS, INSPECTIONS	I-3404		
REMARKS			

OWNER - White Mountain National Forest

CONDITION- Good

MENACE - Yes. Will be subject to periodic inspection.

To the Public Service Commission:

The foregoing memorandum on the above dam is submitted covering inspection made July 6, 1936, according to notification to owner dated June 29, 1936, and bill for same is enclosed.

D. Waldo White
Chief Engineer

July 21, 1936
Copy to Owner

NEW HAMPSHIRE WATER CONTROL COMMISSION
DATA ON DAMS IN NEW HAMPSHIRE

LOCATION STATE NO. 57

Town Campton : County Grafton

Stream

Basin-Primary Pemigewasset : Secondary Mad River

Local Name Common Lake-Upper Dam

Coordinates—Lat. 43° 50' ~~Thence~~ 1060' : Long. 71° 40' ~~2,000~~ 2000

GENERAL DATA

Drainage area: Controlled ..... Sq. Mi.: Uncontrolled ..... Sq. Mi.: Total 57.3 ✓ Sq. Mi.

Overall length of dam 155 ✓ ft.: Date of Construction 1935 ✓

Height: Stream bed to highest elev. 35' ✓ ft.: Max. Structure 30' ✓ ft.

Cost—Dam : Reservoir

DESCRIPTION Gravity-Ledge Foundation ✓

Waste Gates

Type

Number : Size ft. high x ft. wide

Elevation Invert : Total Area sq. ft.

Hoist

Waste Gates Conduit

Number : Materials

Size ft.: Length ft.: Area sq. ft.

Embankment

Type

Height—Max. ft.: Min. ft.

Top—Width : Elev. ft.

Slopes—Upstream on : Downstream on

Length—Right of Spillway : Left of Spillway

Spillway

Materials of Construction Concrete

Length—Total ft.: Net 150 ✓ ft.

Height of permanent section—max. 20' ft.: Min. ft.

Flashboards—Type : Height 1' ✓ ft.

Elevation—Permanent Crest : Top of Flashboard

Flood Capacity 3235 cfs.: 103 cfs/sq. mi.

Abutments

Materials:

Freeboard: Max. 5' ✓ ft.: Min. ft.

Headworks to Power Devel.—(See "Data on Power Development")

OWNER White Mtn. National Forest-Laconia N.H. ✓

REMARKS Recreation

NEW HAMPSHIRE WATER CONTROL COMMISSION
DATA ON RESERVOIRS & PONDS IN NEW HAMPSHIRE

LOCATION AT DAM NO. 33.01

Town Campton : County Grafton

Stream Campton Lake

Basin—Primary Pemigewasset : Secondary Mad River

Local Name Upper Dam

DRAINAGE AREA

Controlled ..... Sq. Mi.: Uncontrolled ..... Sq. Mi.: Total 57.6 Sq. Mi.

ELEVATION vs. WATER SURFACE AREA vs. VOLUME

	Point	Head Feet	Surface Area Acres	Volume Acre Ft.
(1)	Max. Flood Height			
(2)	Top of Flashboards			
(3)	Permanent Crest			
(4)	Normal Drawdown	31	58	
(5)	Max. Drawdown			
(6)	Original Pond	U.S.G.S. 647		

Base Used .....: Coef. to change to U.S.G.S. Base .....

RESERVOIR CAPACITY

	Total Volume	Useable Volume
Drawdown	....ft.	....ft.
Volume	....ac. ft.	....ac. ft.
Acre ft. per sq. mi.		
Inches per sq. mi.		

USE OF WATER Recreation

OWNER White Mtn National Forest- Laconia N H

REMARKS

Tabulation By ..... Date .....

DATE: November 3, 1969

FROM: Francis C. Moore

SUBJECT: Campton Pond Dam Inspection

TO: Vernon A. Knowlton
Chief Water Resources Engineer

On October 30, 1969, I inspected Campton Pond dam, owned by U. S. Department of Agriculture Forest Service with headquarters at Laconia, New Hampshire. The following report is made:

There are numerous trees and brush on the pond side of the east earth embankment of the dam. In the section northeasterly of the end of the concrete cutoff wall, overturning of these trees could seriously weaken the embankment. They should be removed as some trees are over 10 inches in diameter.

The west (or right) abutment has been breached during the construction of Federal Land Highway FLH 9-1 (2), New Hampshire Project No. S75426 - Waterville Road. The concrete cutoff wall from the right abutment has either been unearthed or cut off to make way for this new highway. The gravel fill on the roadway is about six feet below the top of dam abutments. As the roadway is about 54 feet wide from concrete cutoff wall to side slope, an emergency spillway has been created. At the present time, a flow of over 8,800 cubic feet per second by Campton Pond Dam would run down this emergency spillway.

This road should either be raised six feet at the dam or a concrete cutoff wall be constructed from ledge to road surface with provisions for a strong stoplog closure at times of high water to prevent the cutting of a serious channel down this road and possibly causing trouble to houses and roads downstream.

FCM/jb

December 30, 1969

White Mountain National Forest
U. S. Forest Service
719 Main Street
Laconia, New Hampshire 03246

Gentlemen:

Dam No. 35.01, known as Compton Pond dam on Mad River owned by you was inspected by the New Hampshire Water Resources Board on October 30, 1969 per the provisions of Chapter 482, RSA. As a result of this inspection, this dam classified as a menace, was found to have had its discharge capacity recently reduced as a result of the reconstruction of the Waterville Road. This reconstruction was financed as a Federal Land Highway FLH 2-1 (2), New Hampshire Project No. 575426.

This reduction in discharge capacity at Compton Pond dam is the result of breaching the right (looking downstream) abutment concrete cutoff wall for a distance of over fifty feet. The level of the highway now is at least five feet below the top of spillway abutments. It is estimated that discharge would flow down this highway once in about four and one half years. The resulting damage and possible threat to life could be serious if corrective measures are not taken.

The reconstruction of Dam No. 35.01 by you or your agent is in violation of Chapter 483:3, 4, Laws of 1969. It is requested that you immediately take corrective measures to eliminate this menace to the public safety.

No corrective measure employing sand bags will be permitted due to the lack of time to erect and the large area of closure. Some stop-log type structure should be constructed with removable stanchions capable of erection upon short notice. A structure of this type was constructed by the U. S. Army Corps of Engineers at Northampton, Mass. across U.S. Highway Route #5 closing the flood control dike at the south end of the city. A concrete cutoff wall must be constructed from the old concrete cutoff wall to the surface of the ground.

It is requested that your agency reply showing the method of correcting this discharge deficiency.

White Mountain National Forest -2- December 30, 1969

It was also noted that there were several large trees and sizeable brush on the left (east) abutment earth embankment. The larger trees, especially, could be uprooted by hurricane winds which might cause a breach in the embankment. These trees, at least, should be removed as soon as possible as a safety measure.

Very truly yours,

George M. McGee, Sr.
Chairman

gmcg/vek:c
cc: P.W.& H.

M E M O R A N D U M

DATE: July 17, 1973

FROM: Pattu D. Kesavan, Water Resources Engineer

SUBJECT: Campton Pond Dam - Owned by Forestry Dept. - Dam #35.01

TO: Vernon A. Knowlton, Chief Engineer, Water Resources Board

On July 2, 1973, I made an inspection of the Campton Pond Dam which is owned by the Forestry Dept. in Campton. Mr. John Dole, Postmaster of Campton, accompanied me during my inspection.

Dole told me that on June 30 during the flood, the left bank or the easterly side of the dam leaked and flooded the so-called Pond Road. The road was temporarily closed.

On the right side of the dam on Rte. 49 there is an arrangement to install plank barricades across the pavement. This indicates that the Highway Dept. and the Town are aware of the flooding of Rte. 49 during high water. In my opinion, this plank barricade on the right bank, when used, raises the water level in the pond, thereby exerting tremendous pressure on the left bank. The left bank is wide enough to hold the water pressure but seems to be very porous to let a large quantity of water leak through.

To prevent leakage in the future, I recommend that a cut-off trench with impervious material be provided for the entire length (approx. 90 feet shown in the photos).

The existing 90 feet length of concrete wall is 2 1/2 feet wide and about three feet in depth and sits on rocks and earth. A Class A reinforced cement concrete wall should be constructed in the upstream side for the entire length below the existing three feet deep wall and preferably face this wall on the upstream side.

PDK:js

February 10, 1977

United States Forest Service
Federal Building
Laconia, NH 03246

Dear Sir:

Under the provisions of N.H. RSA Chapter 432, Sections 8 through 15 on February 8, 1977 an engineer of the Water Resources Board staff inspected the Campton dam on the Mad River. This dam, #35.01 is classified in the files of this office as a menace structure and as such must be maintained in a manner not to endanger public safety nor become a dam in disrepair.

This was only a partial inspection concerning only the east embankment and waste gate. The rest of the structure will be inspected as conditions permit.

As a result of this inspection it was noted that several items of maintenance or repair are in need of attention.

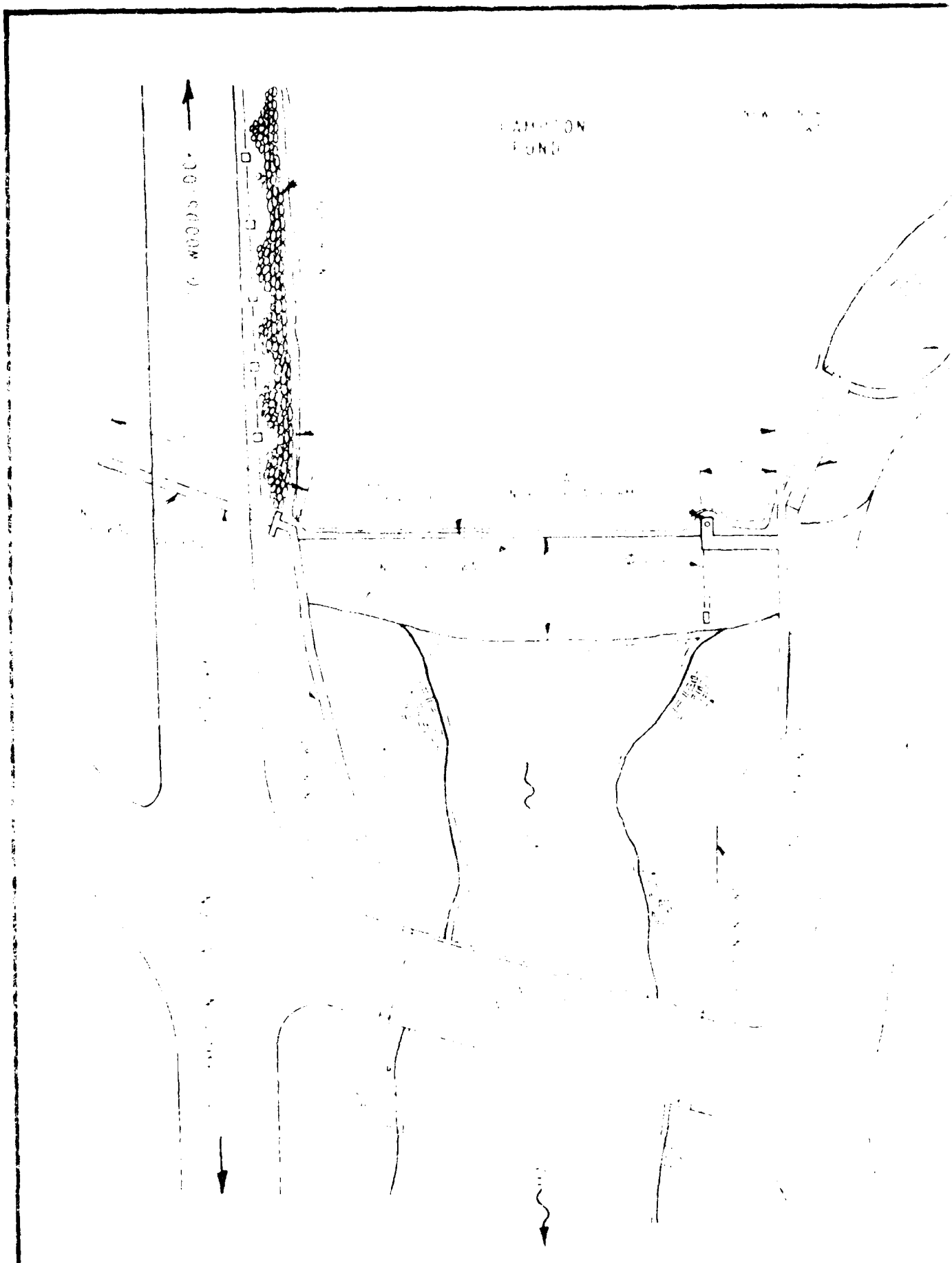
1. East embankment (Pond Road Side) is leaking approximately in the area where the old concrete wall (pre 1934) and new wall meet. This is permitting water to flow at full pond onto Pond Road and then onto the state highway. Because of the cold weather this makes for a dangerous situation. If this wall were to fail in this area at the time of a high flow this could endanger the property and possibly the lives of the people living directly downstream from this area. The leak is to be taken care of as soon as possible.

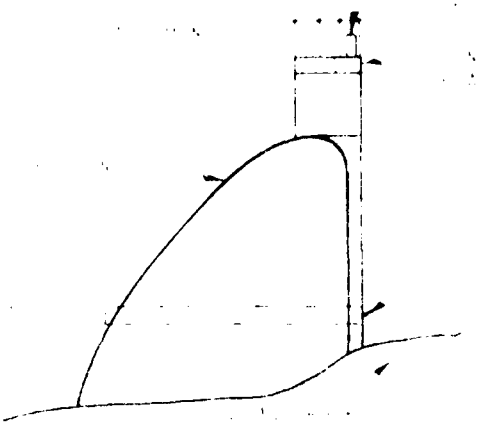
2. At the time of inspection the waste gate appeared to be closed but there was still considerable water being discharged. This should be taken care of to permit the proper operation of gate.

Because this dam is classified as a menace structure we require that you send us a proposed schedule of repairs within 30 days. If y ou have any questions please contact us at your convenience.

Very truly yours,

George M. McGee, Sr.
Chairman

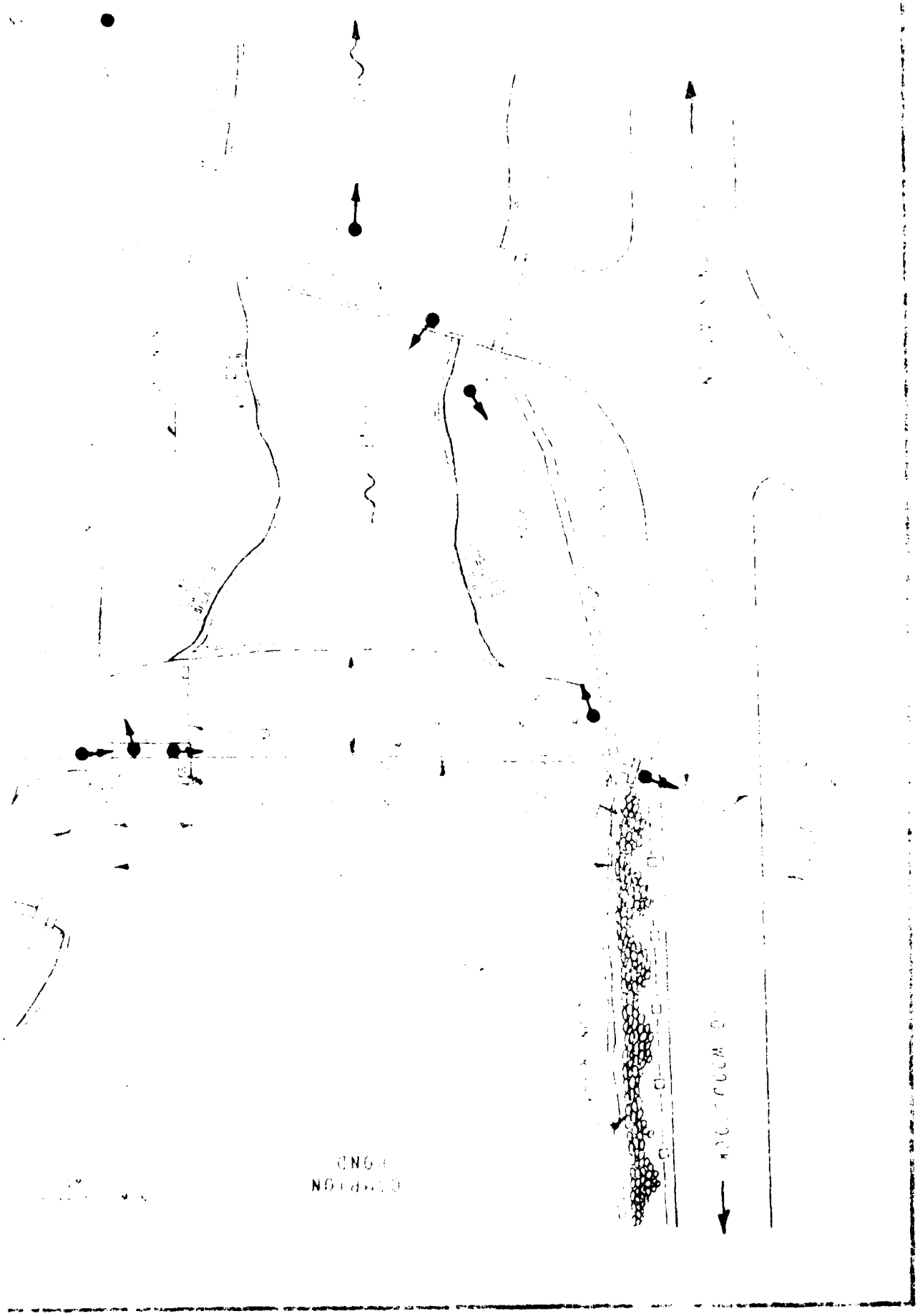


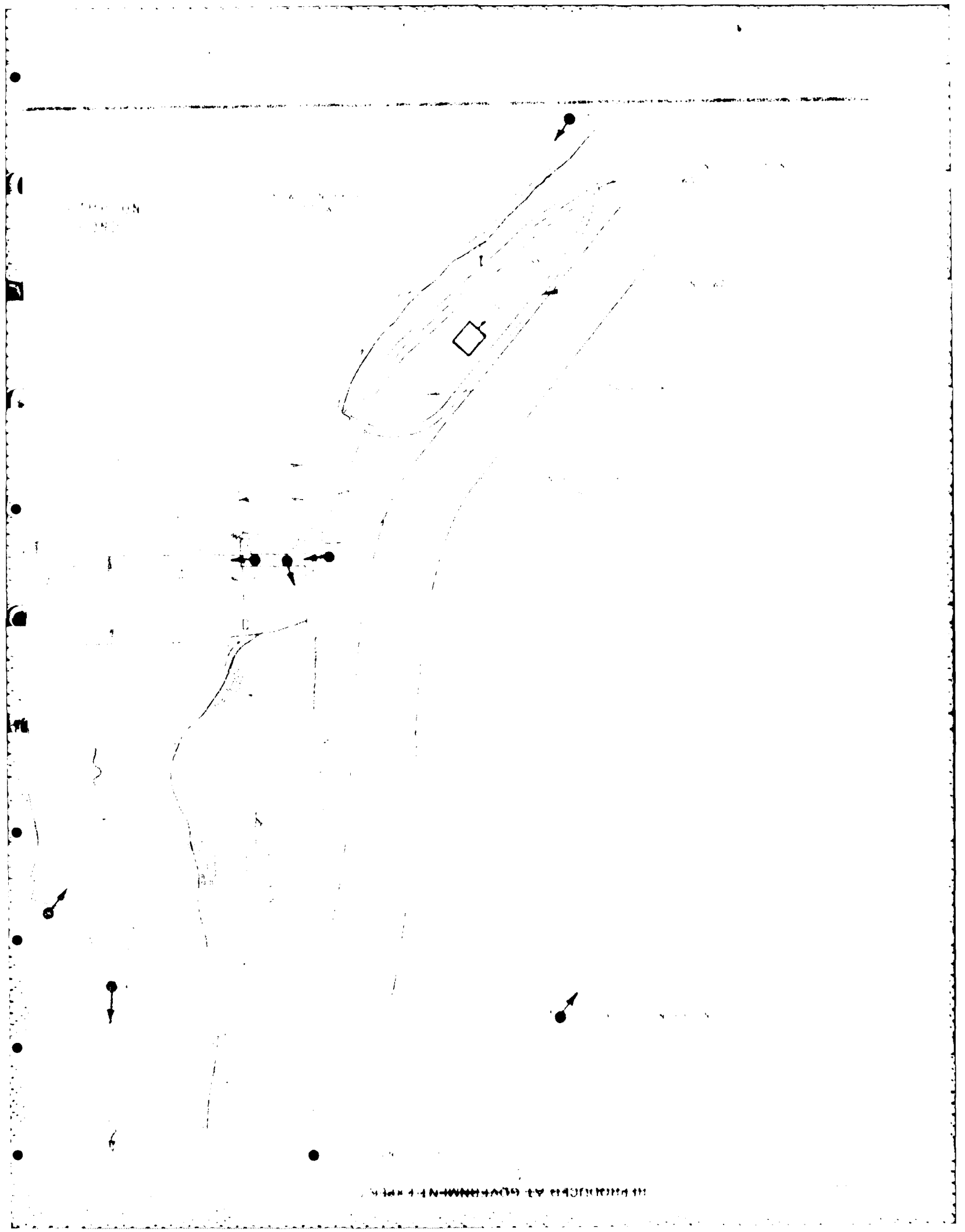


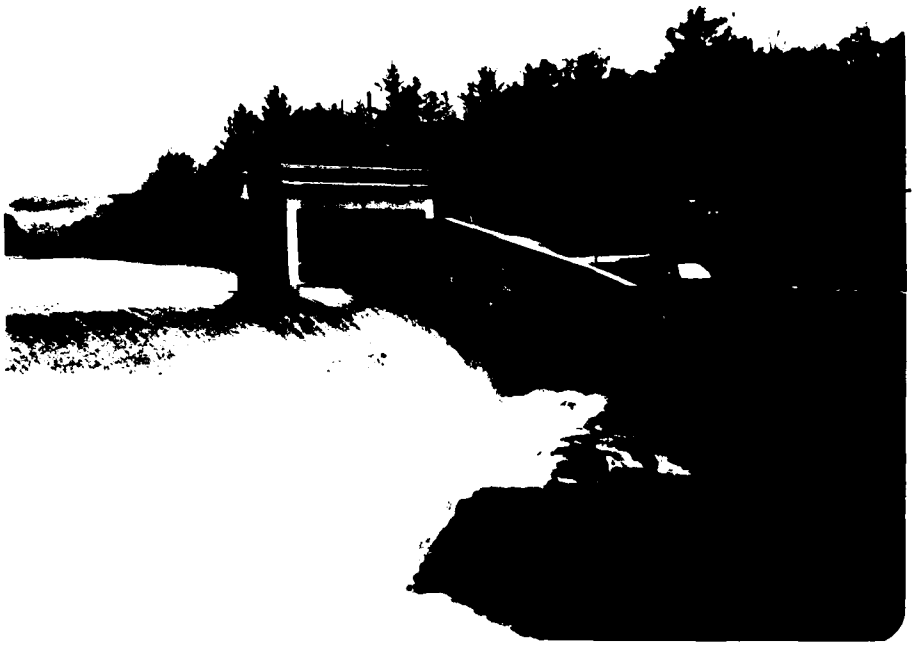
TYPICAL CROSS SECTION

APPENDIX C

PHOTOGRAPHS





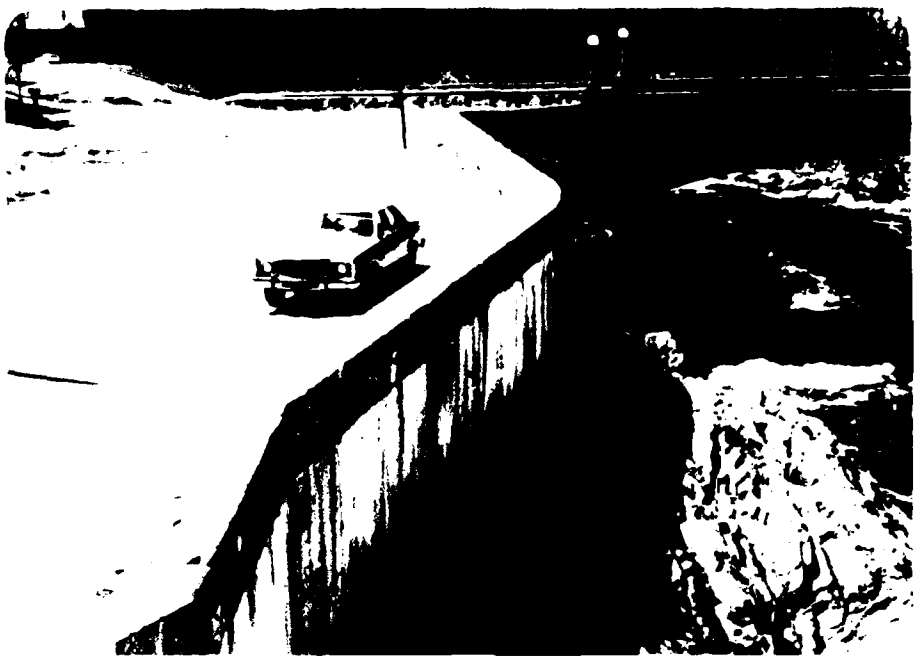


#1. VIEW OF LEFT SIDE SPILLWAY AND OUTLET GATE OPERATOR PLATFORM

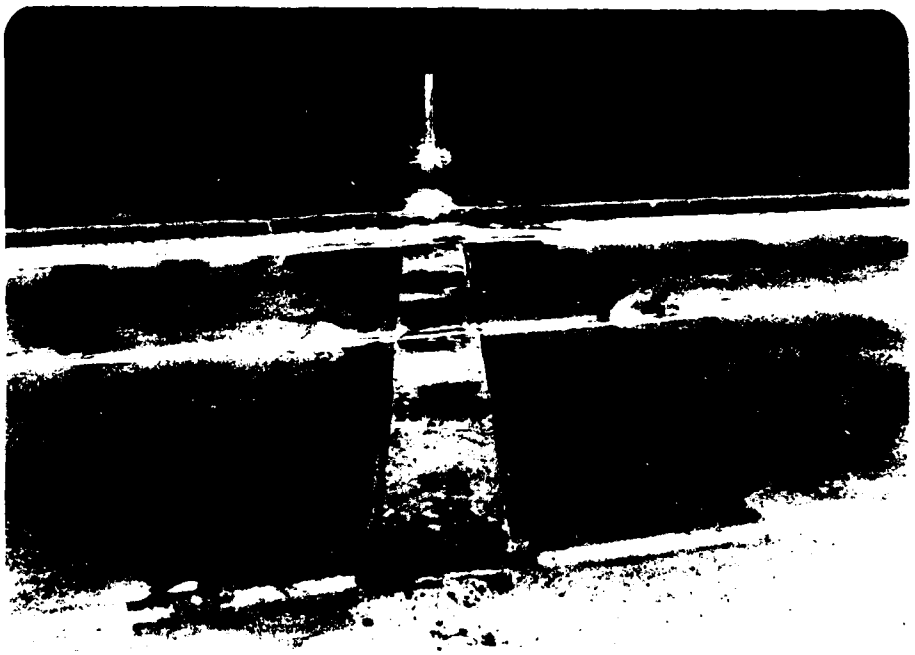
#2. VIEW OF RIGHT SIDE SPILLWAY AND ABUTMENT

#3. VIEW OF LEFT ABUTMENT AND CORE WALL SHOWING NEW CONCRETE FACING

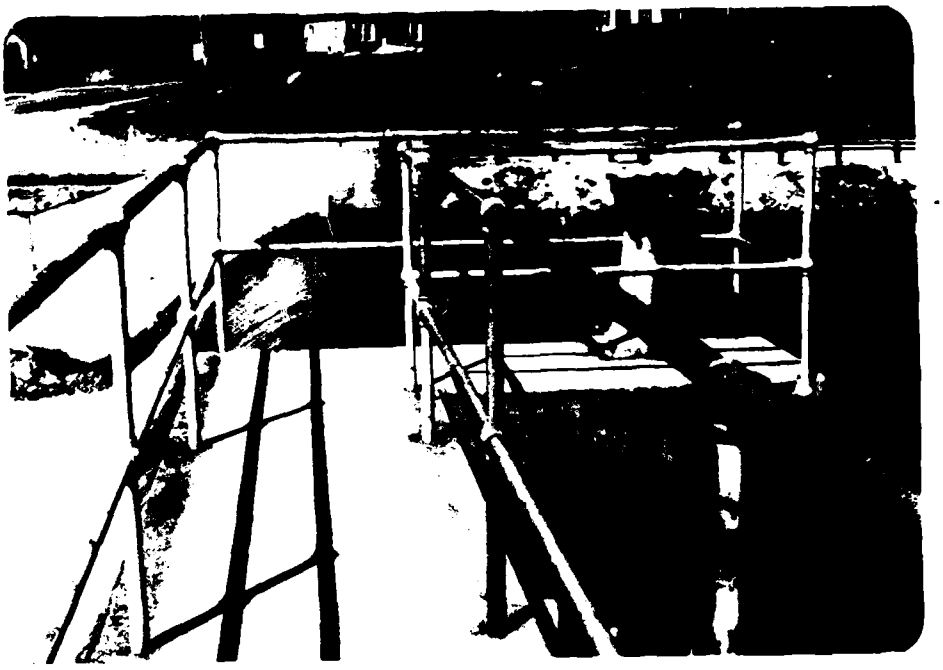
#4. VIEW OF RIGHT ABUTMENT AND DOWNSTREAM RETAINING WALL



#5. VIEW OF LEFT SIDE DOWNSTREAM RETAINING WALL



#6. VIEW OF RIGHT SIDE ABUTMENT WALL BREACH AND STOP LOG STANCHION SUPPORTS



#7. VIEW OF OUTLET GATE OPERATOR AND PLATFORM

#8. VIEW OF DOWNSTREAM HIGHWAY BRIDGE

#9. VIEW OF DOWNSTREAM CHANNEL

#10. VIEW OF DOWNSTREAM IMPACT AREA

APPENDIX D

HYDROLOGIC AND HYDRAULIC COMPUTATIONS

DUFRESNE-HENRY ENGINEERING CORPORATION

BY [illegible] SUBJECT Canyon Pond SHEET NO. 1 OF
ATE 3-22-79 Drainage Area - Classification JOB NO. 04-0022

Drainage Area

SCALE 1:62500
FACTOR .98

PLANIMETER READING 57.62

(57.62)(.98) = 56.27 sq mi

SCALE 1:24000
FACTOR (.144)

PLANIMETER READING 9.46

(9.46)(.144) = 1.36 sq mi

TOTAL 57.63 sq mi

Pond Area

43 Acres

STORAGE (NORMAL WATER ELEV) 350 AC-FT

Classification

SIZE HEIGHT 35'
STORAGE 350 AC-FT

SMALL

HAZARD

SIGNIFICANT

1 HOUSE & A MILL 700 DOWNSTREAM

TEST FLOOD

FOR SMALL, SIGNIFICANT HAZARD ⇒ 100 YEAR TO 1/2 PMF
USE 1/2 P.M.F

FROM HEC 1 1/2 PMF = 30,919 CFS

ROUTING

RESERVOIR ROUTING WAS NOT CONSIDERED AS SURCHARGE STORAGE WOULD PRODUCE INSIGNIFICANT IN FLOOD PEAKS

DUFRESNE-HENRY ENGINEERING CORPORATION

BY W.A.L SUBJECT CAMPTEN POND SHEET NO. 2 OF ___

DATE 3-22-79 DISCHARGE RATES JOB NO. 04-0068

WITH STOP LOGS IN PLACE ACROSS ROUTE #49

SPILLWAY LENGTH 151.3'
CREST ELEV 647.00
NEGLECT LOW LEVEL OUTLET

ELEV ABUTMENTS & WINGWALLS 656.00
ASSUME C = 3.9 FOR SPILLWAY
$Q = CLH^{3/2}$

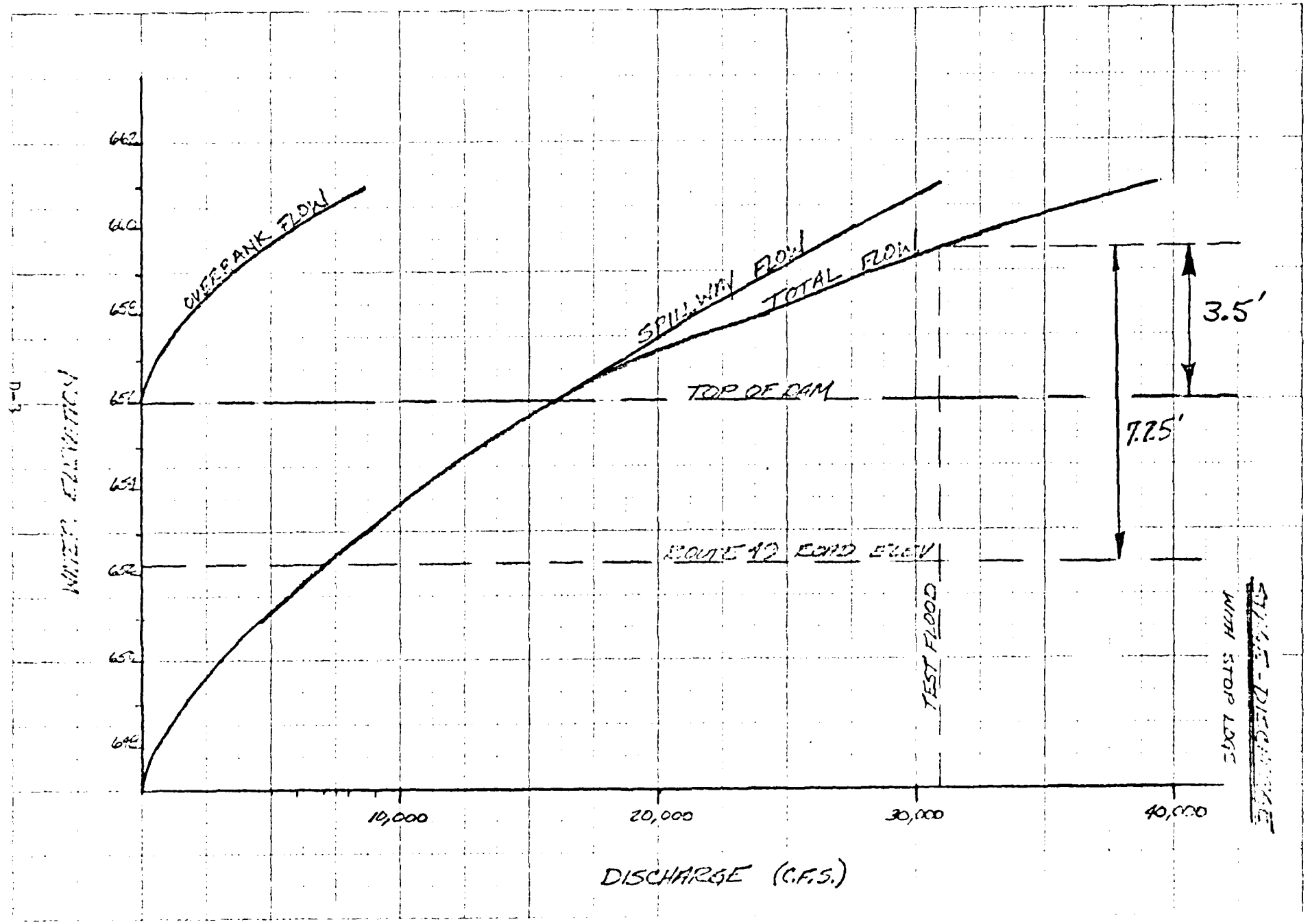
FOR OVERBANK FLOW
LEFT WALL C = 2.6
RIGHT (STOP LOGS) C = 3.3
$Q = CAH^{1/2}$

WSEL	$H_{SPILLWAY}$	$Q_{SPILLWAY}$	$h_{OVERBANK}$	LENGTH LEFT	Q_{LEFT}	LENGTH RIGHT	Q_{RIGHT}	Q TOTAL
647	0	0 cfs						0
648	1	590						590
649	2	1669						1669
650	3	3066						3066
651	4	4721						4721
652	5	6597						6597
653	6	8672						8672
654	7	10,928						10,928
655	8	13,352	0	170	0	60	0	13,352
656	9	15,932	1	170	442	60	198	15,932
657	10	18,660	2	180	1324	62	579	19,300
658	11	21,527	3	190	2567	64	1097	23,430
659	12	24,529	4	200	4160	66	1742	28,193
660	13	27,658	5	210	6104	68	2509	33,560
661	14	30,910						39,523

STORAGE

NORMAL RESERVOIR STORAGE 350 ACRE-FEET
POND AREA 43 ACRES
ASSUME INCREASE OF 50 ACRE-FEET OF STORAGE PER 1 FOOT INCREASE IN WATER ELEV.

WSEL	STORAGE
647	350
648	400
649	450
650	500
651	550
652	600
653	650
654	700
655	750
656	800
657	850
658	900
659	950
660	1000
661	1050


662
660
658
656
654
652
650
648
OVERBANK FLOW
SPILLWAY FLOW
TOTAL FLOW
TOP OF DAM
3.5'
7.75'
ROUTED POND ELEV
TEST FLOOD
10,000
20,000
30,000
40,000
DISCHARGE (C.F.S.)

DUFRESNE-HENRY ENGINEERING CORPORATION

BY W.A. LEONARD SUBJECT CAMPTON POND SHEET NO. 4 OF
DATE 5-15-79 DISCHARGE CALC JOB NO. 04-0088
WITHOUT STOP LOGS

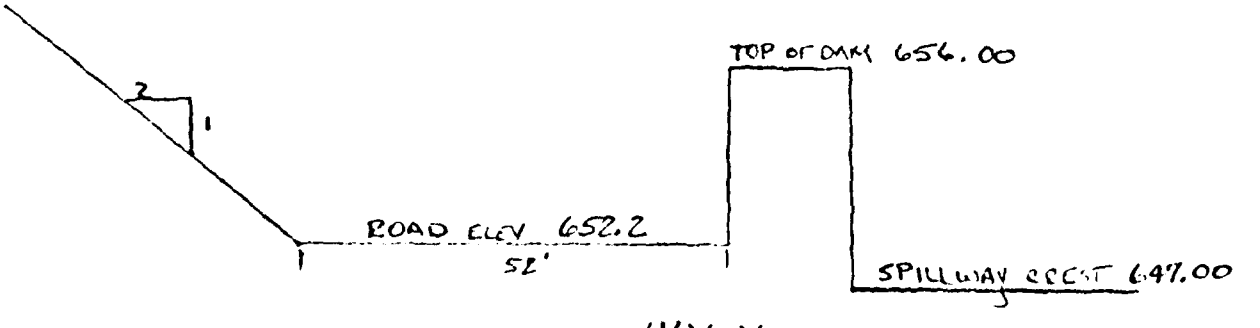
SPILLWAY LENGTH 151.3'
CREST ELEV 647.00
NEGLECT LOW LEVEL OUTLET

ELEV ABUTMENTS & WINGWALLS 656.00
ASSUME C = 3.9 FOR SPILLWAY
$Q = CLH^{3/2}$

FOR OVERBANK FLOW
LEFT WALL C = 2.6
RIGHT WALL C = 2.5
$Q = CAH^{1/2}$

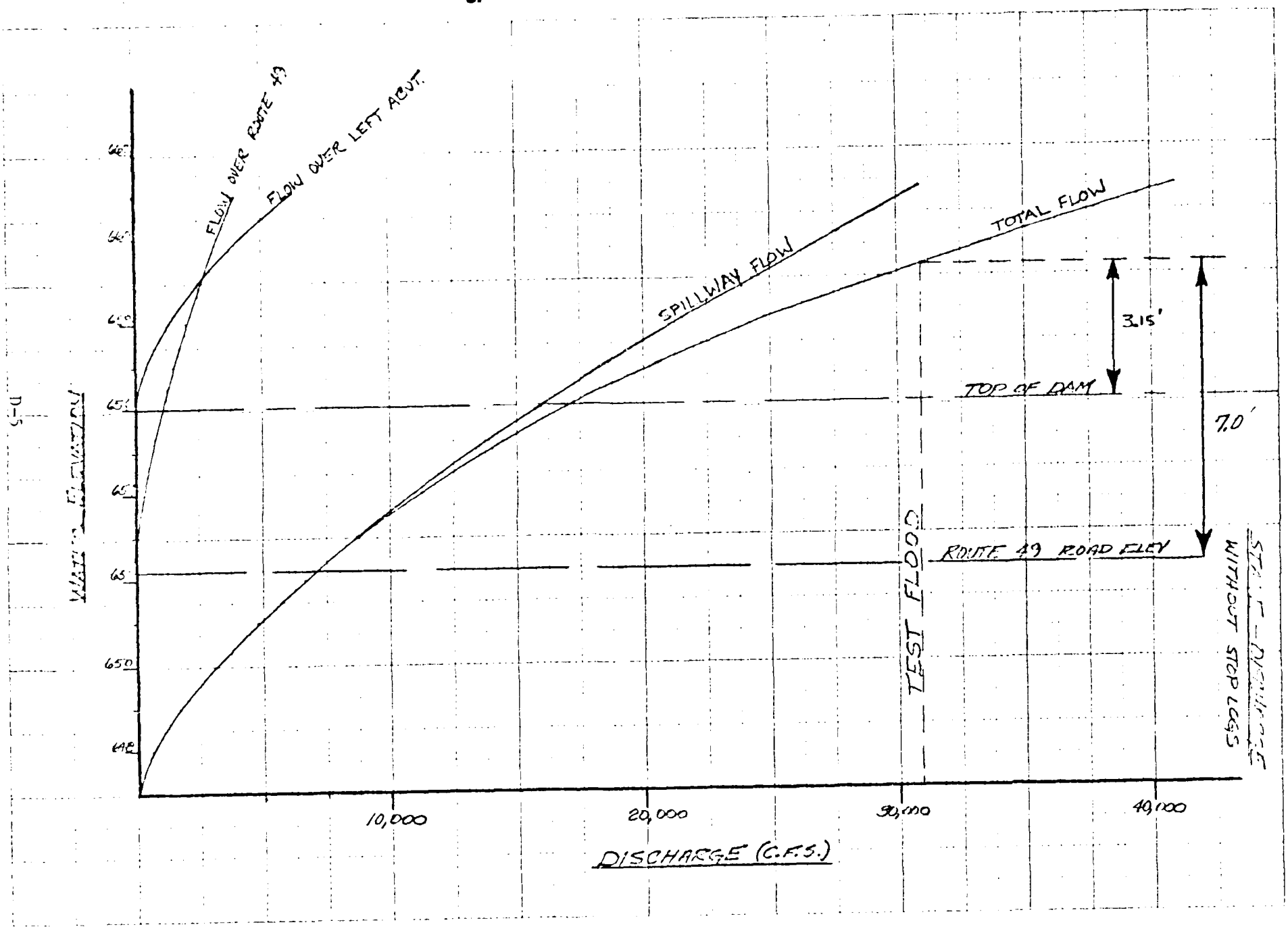
WSEL	$H_{SPILLWAY}$	$Q_{SPILLWAY}$	h_{LEFT}	AREA LEFT		Q_{LEFT}	h_{RIGHT}	AREA RIGHT	Q_{RIGHT}	Q TOTAL
647	0	0 (cfs)								0
648	1	590								590
649	2	1669								1669
650	3	3066								3066
651	4	4721								4721
652	5	6597	—	—		-0-	0	0	0	6597
653	6	8692	—	—		-0-	0.8	42.24	94	8786
654	7	10,928	—	—		-0-	1.8	96.84	325	11,253
655	8	13,352	—	—		-0-	2.8	153.44	642	13,994
656	9	15,932	0	L	R	0	3.8	212.04	1033	16,965
657	10	18,660	1	170	170	442	4.8	272.64	1493	20,595
658	11	21,527	2	180	360	1324	5.8	335.24	2018	24,869
659	12	24,529	3	190	570	2567	6.8	399.84	2607	29,703
660	13	27,658	4	200	800	4160	7.8	466.44	3257	35,075
661	14	30,910	5	210	1050	6104	8.8	535.04	3968	40,982

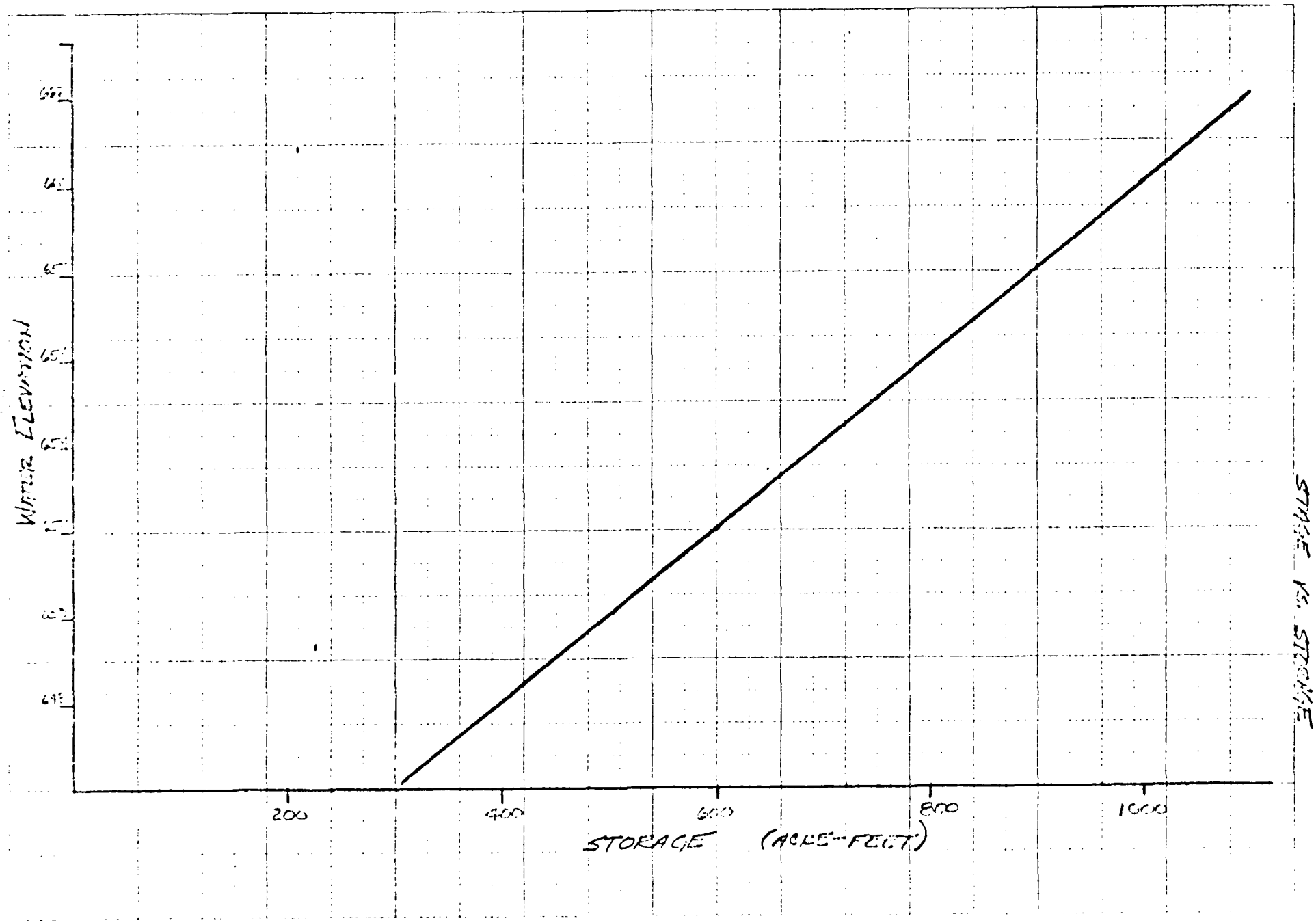
WITHOUT STOP LOGS ON RIGHT ABUTMENT — ROAD ELEV ≈ 652.2



AREA = $52h + (1/2)(h)(2h)$

$\Rightarrow 52h + h^2$


FLOW OVER ROUTE 49
FLOW OVER LEFT ABUT.
SPILLWAY FLOW
TOTAL FLOW
3.15'
TOP OF DAM
7.0'
ROUTE 49 ROAD ELEV
TEST FLOOD
WITHOUT STOP LOGS
650
10,000
20,000
30,000
40,000
DISCHARGE (C.F.S.)



STAGE VS. STORAGE

SOIL CLASSIFICATION

DOMINANT SOILS OF THE LYMAN - BERKSHIRE - MARLOW, MARLOW - LYMAN ASSOCIATION

HYDROLOGIC SOIL GROUP "C"

FROM S.C.S. FOR GROUP "C" SOIL RUNOFF CURVE NO 73

LAND USE — WOODED

MODERATELY STEEP, SHALLOW OVER BEDROCK, WELL DRAINED TO EXCESSIVELY DRAINED STONY LOAMY SOIL ON UPLANDS & MOUNTAINS

INITIAL ABSTRACTION LOSSES (ASSUME WET CONDITION)

FROM TABLE 10.1 = .30 INCHES

INFILTRATION RATE FROM S.C.S. FOR GROUP "C" SOIL = .12 INCHES/HOUR

AVERAGE SLOPE

ELEV @ 10% 715
ELEV @ 85% 1780
TOTAL LENGTH 14.1059 MILES
DIST BETWEEN 10 & 85% PTS 10.5794 MILES

$$\frac{1780-715}{10.5794} = 100.67 \text{ FT/MILE}$$

$$T_p = 2.2\left(\frac{L L_c}{\sqrt{S}}\right)^{.37} = 2.2\left[\frac{14.1059(.6)(14.1059)}{\sqrt{100.67}}\right]^{.37} = 5.50$$

DAM FAILURE WITH WATER LEVEL AT CREST ELEV

$Q_p = 8/27 \, W_b \sqrt{g} \, Y_o^{3/2}$ $\qquad Y_o = 26$

$Q_p = 8/27 (.4)(151.3)\sqrt{32.2}\,(26)^{3/2} = $ 13,490 CFS

DAM FAILURE WITH WATER LEVEL AT [illegible] ELEV

$Q_p = 8/27 \, W_b \sqrt{g} \, Y_o^{3/2}$ $\qquad Y_o = 35$

$Q_p = 8/27 (.4)(151.3)\sqrt{32.2}\,(35)^{3/2} = $ 21,070 CFS

FOR DAM FAILURE — WATER AT TOP OF DAM (ABUTMENTS) 656.00

WATER @ 656.00 CREST ELEV 647.00
WIDTH OF SPILLWAY 151.3' $Y_0 = 35'$

WIDTH OF BREACH = (.4)(151.3) = 60.5'

DISCHARGE @ TOP OF DAM = 15,932
DISCHARGE THRU BREACH = $8/27\, W_b \sqrt{g}\, Y_0^{3/2}$ = $8/27(60.5)(5.67)(35)^{3/2}$ = 21,046 cfs
DISCHARGE OVER REMAINING SPILLWAY = $CLH^{3/2}$ = $3.9(90.8)(9)^{3/2}$ = 9,561 cfs

TOTAL FLOW DURING FAILURE 9,561 + 21,046 = 30,607 CFS.

INCREASE OF FLOW DUE TO FAILURE 30,607 − 15,932 = 14,675 cfs (Q_{P_1})

STORAGE @ FAILURE 800 ACRE-FEET
HYDRAULIC CAPACITY OF BREACH = Q = $3.08(60.5)(H)^{3/2}$ = 15,932

$$H = \left[\frac{15932}{(3.08)(60.5)}\right]^{2/3} = 19.7'$$

WATER ELEV WOULD DROP TO (621 + 19.7) = 640.7
STORAGE AT THIS ELEV = (350 − 50(6.3)) = 35 AC-FT

VOLUME RELEASED = 800 − 35 = 765 AC-FT (S)

[illegible] 19.5 FOR 30,600 CFS STAGE = 638.4
X-SECTION # 21 FOR 30,600 CFS STAGE = 620.1

FOR 30,600 CFS			FOR 15,932 CFS		
STORAGE AT	638.4	38.1	STORAGE AT	633.0	22.2
	620.1	0		615.9	0
		38.1 AC-FT			22.2 AC-FT

DIFFERENCE = ADDITIONAL VOLUME CAUSED BY DAM FAILURE = 38.1 − 22.2 = 15.9 AC-FT (V_1)

$$Q_{P_2} = Q_{P_1}\left(1 - \frac{V_1}{S}\right) = 14,675\left(1 - \frac{15.9}{765}\right) = \underline{14,370 \text{ cfs}}$$

∴ USE Q_{P_2} BECAUSE OF SUCH MINOR REDUCTION

Q TOTAL = 15,932 + 14,370 = 30,302 CFS

CONCLUSION:

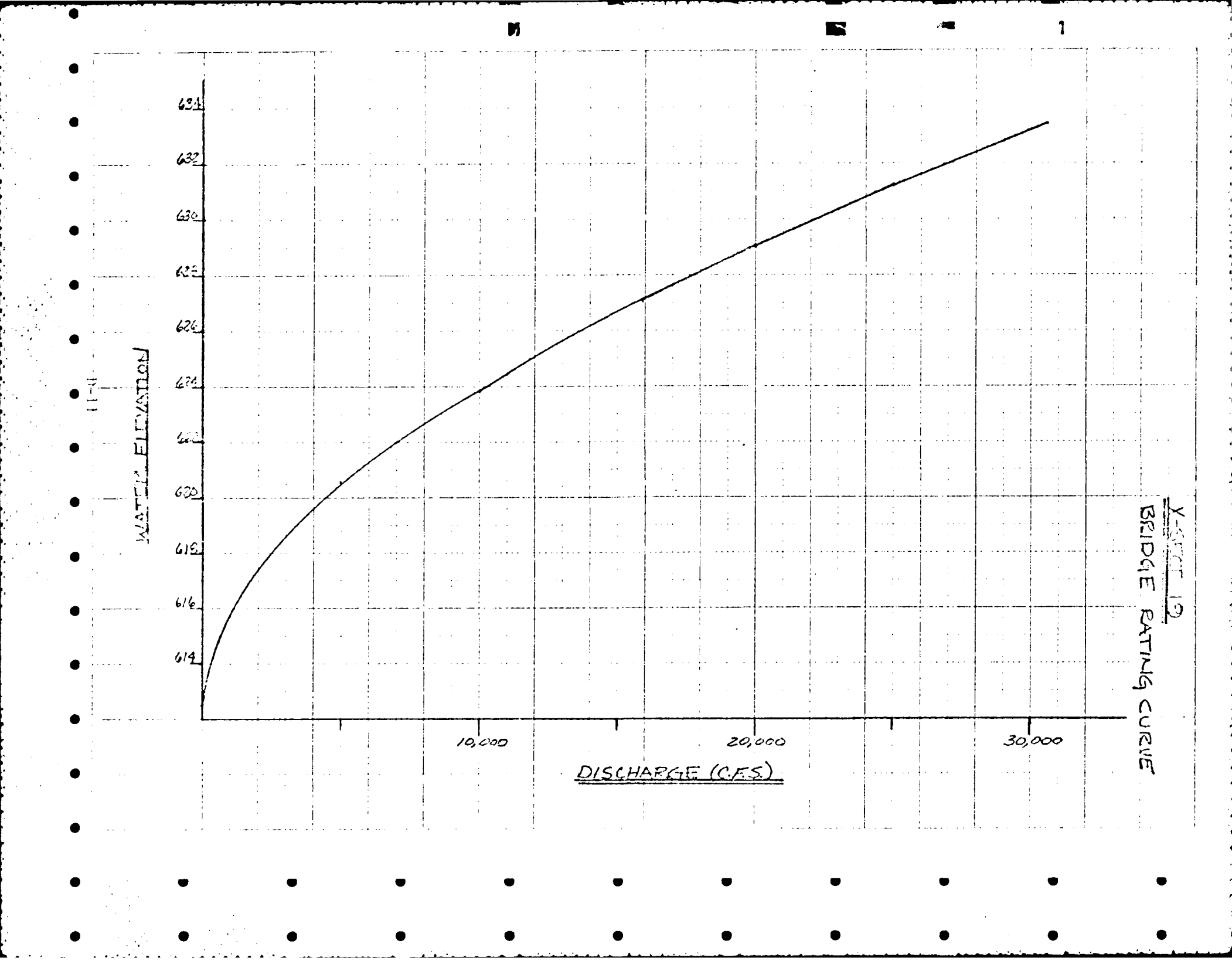
FOR A DAM FAILURE WITH THE WATER ELEVATION AT TOP OF DAM (ELEV 656.00) THE TOTAL FAILURE FLOW WOULD BE 30,200 CFS THIS REPRESENTS AN ADDITIONAL FLOW DUE TO FAILURE OF APPROXIMATELY 14,400 CFS.

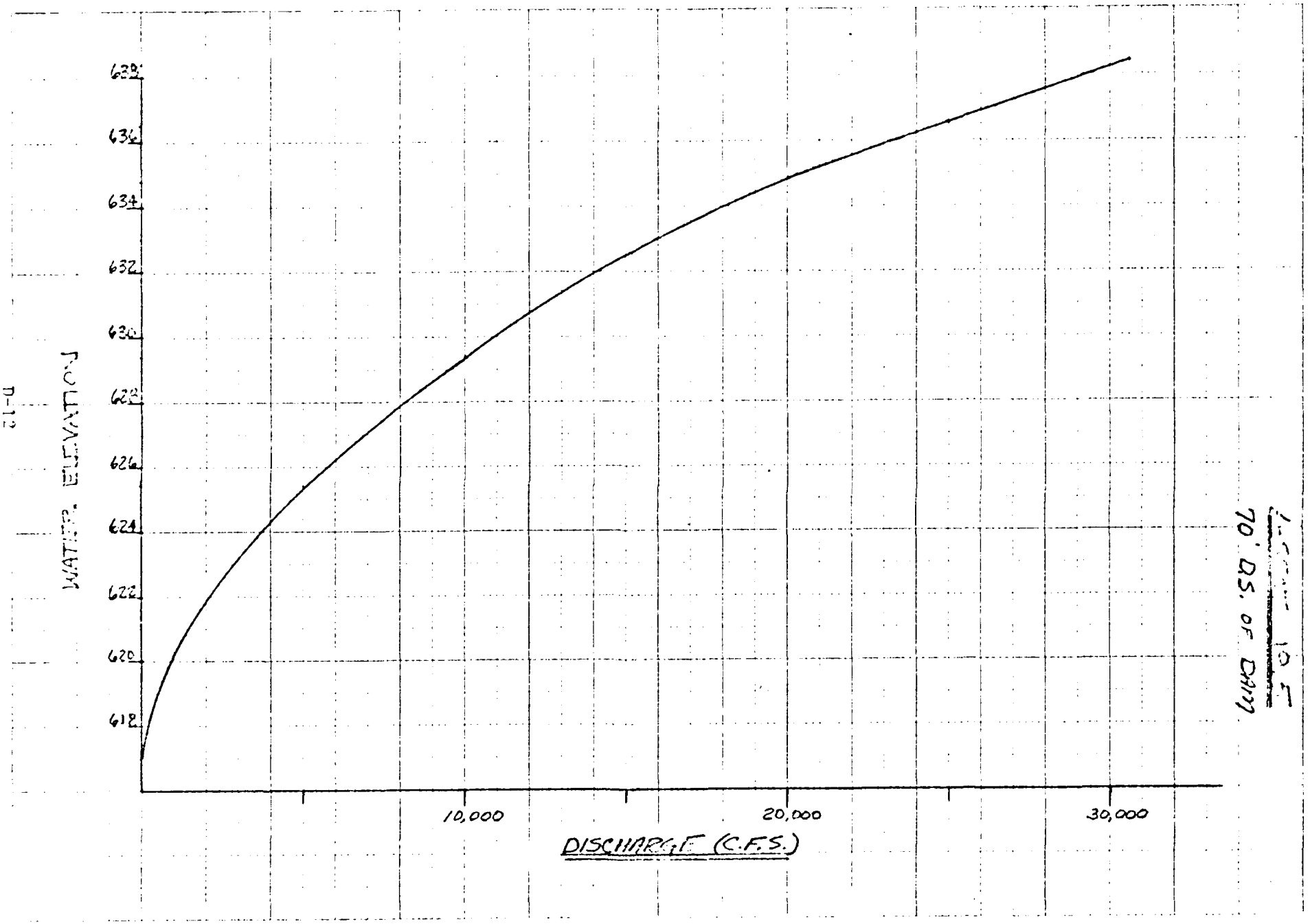
AT THE BRIDGE JUST DOWNSTREAM OF THE DAM THE WATER ELEVATION WOULD BE 633.9 WHICH WOULD BE WELL WITHIN THE LIMITS OF THE ARCH ON THE BRIDGE.

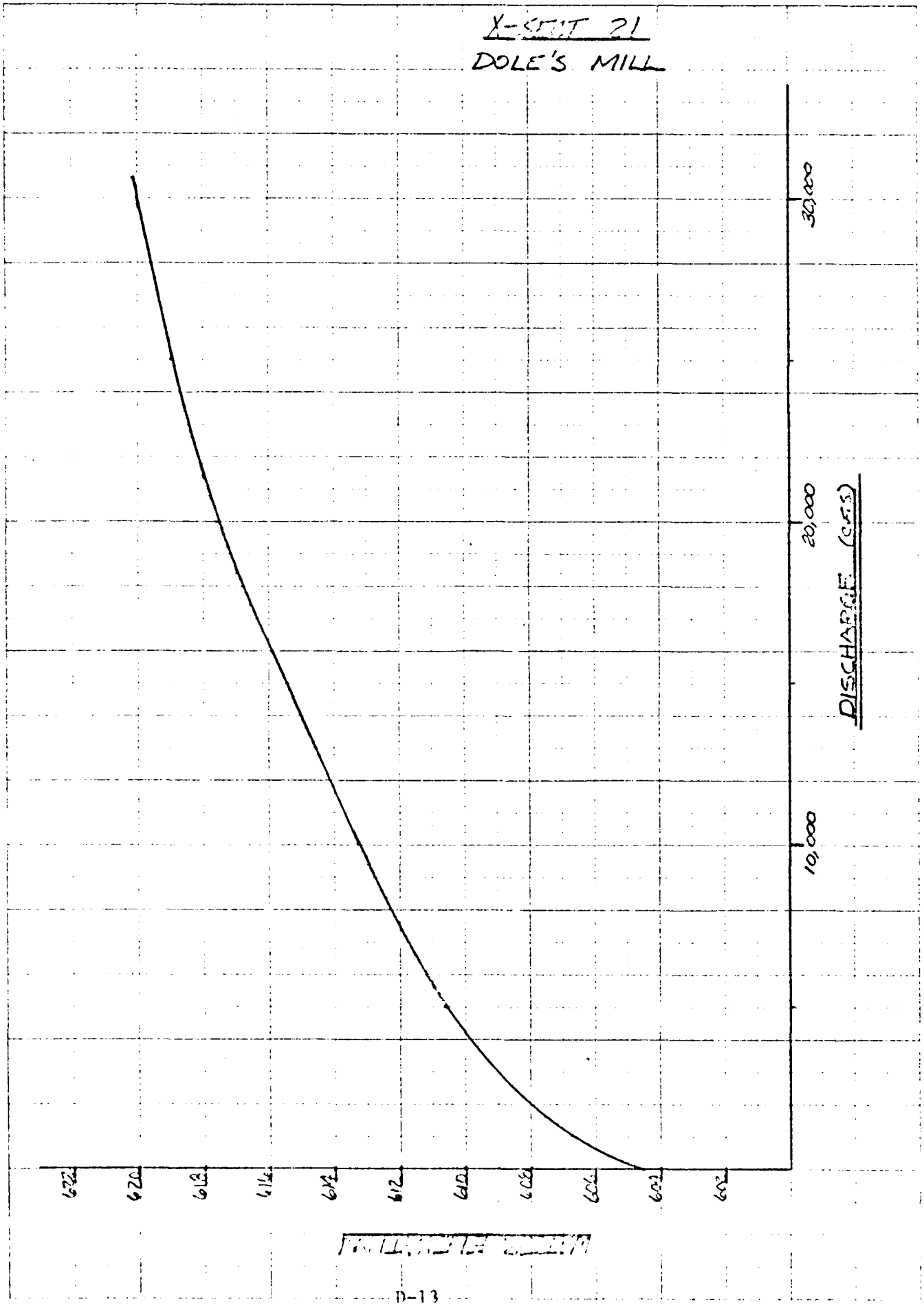
AT CROSS-SECTION #20 SITE OF THE OLD DAM STRUCTURE THE WATER ELEVATION WOULD BE 627.0 WHICH WOULD PUT THE WATER SURFACE ELEVATION 3 FEET ABOVE THE GROUND FLOOR OF THE HOUSE LOCATED ON THE RIVER BANK. THIS HOUSE WOULD BE DEFINITELY DESTROYED BY UNDERMINING OF THE EXPOSED REAR OF THE BUILDING.

THE DOLE'S MILL AT CROSS-SECTION #21 WOULD BE SERIOUSLY DAMAGED DUE TO A WATER ELEVATION OF 620.1 WHICH IS APPROXIMATELY 3 FEET ABOVE THE GROUND FLOOR OF THE BUILDING AND ABOVE THE ROAD BY 3 FEET. THIS STRUCTURE TOO WOULD BE UNDERMINED AND SEVERELY DAMAGED.

THEREFORE THE HAZARD OF THIS DAM IS SIGNIFICANT


WATER ELEVATION
634
632
630
628
626
624
622
620
618
616
614
10,000
20,000
30,000
DISCHARGE (C.F.S.)
X-SECT 12
BRIDGE RATING CURVE


638
636
634
632
630
628
626
624
622
620
618
TAILWATER ELEVATION
10,000
20,000
30,000
DISCHARGE (C.F.S.)
70' D.S. OF DAM


X-SECT 21
DOLE'S MILL
30,000
20,000
10,000
DISCHARGE (CFS)
622
620
618
616
614
612
610
608
606
602

```
**********
HEC-1 VERSION DATED JAN 1973
UPDATED AUG 74
CHANGE NO. 01
**********
```

CAMPTON POND
CAMPTON NEW HAMPSHIRE
RESERVOIR ROUTING PROGRAM

JOB SPECIFICATION

IO	NHR	NMIN	IDAY	IHR	IMIN	METRC	IPLT	IPRT	NSTAN
72	1	0	1	0	0	0	2	0	0

JOPER	NWT
3	0

********** ********** ********** ********** **********

SUB-AREA RUNOFF COMPUTATION

WATERSHED RUNOFF

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME
1	0	0	0	0	0	1

HYDROGRAPH DATA

IHYDG	IUHG	TAREA	SNAP	TRSDA	TRSPC	RATIO	ISNOW	ISAME	LOCAL
1	1	57.63	0.0	57.63	0.0	0.500	0	0	0

PRECIP DATA

SPFE	PMS	R6	R12	R24	R48	R72	R96
0.0	18.00	92.00	105.00	116.00	123.00	0.0	0.0

TRSPC COMPUTED BY THE PROGRAM IS 0.853

LOSS DATA

STRKR	DLTKR	RTIOL	ERAIN	STRKS	RTIOR	STRTL	CNSTL	ALSMX	RTIMP
0.0	0.0	1.00	0.0	0.0	1.00	0.30	0.12	0.0	0.0

UNIT HYDROGRAPH DATA

TP= 5.50 CP=0.75 NTA= 0

RECESSION DATA

STRTQ= 114.00 QRCSN= -0.10 RTIOR= 1.50

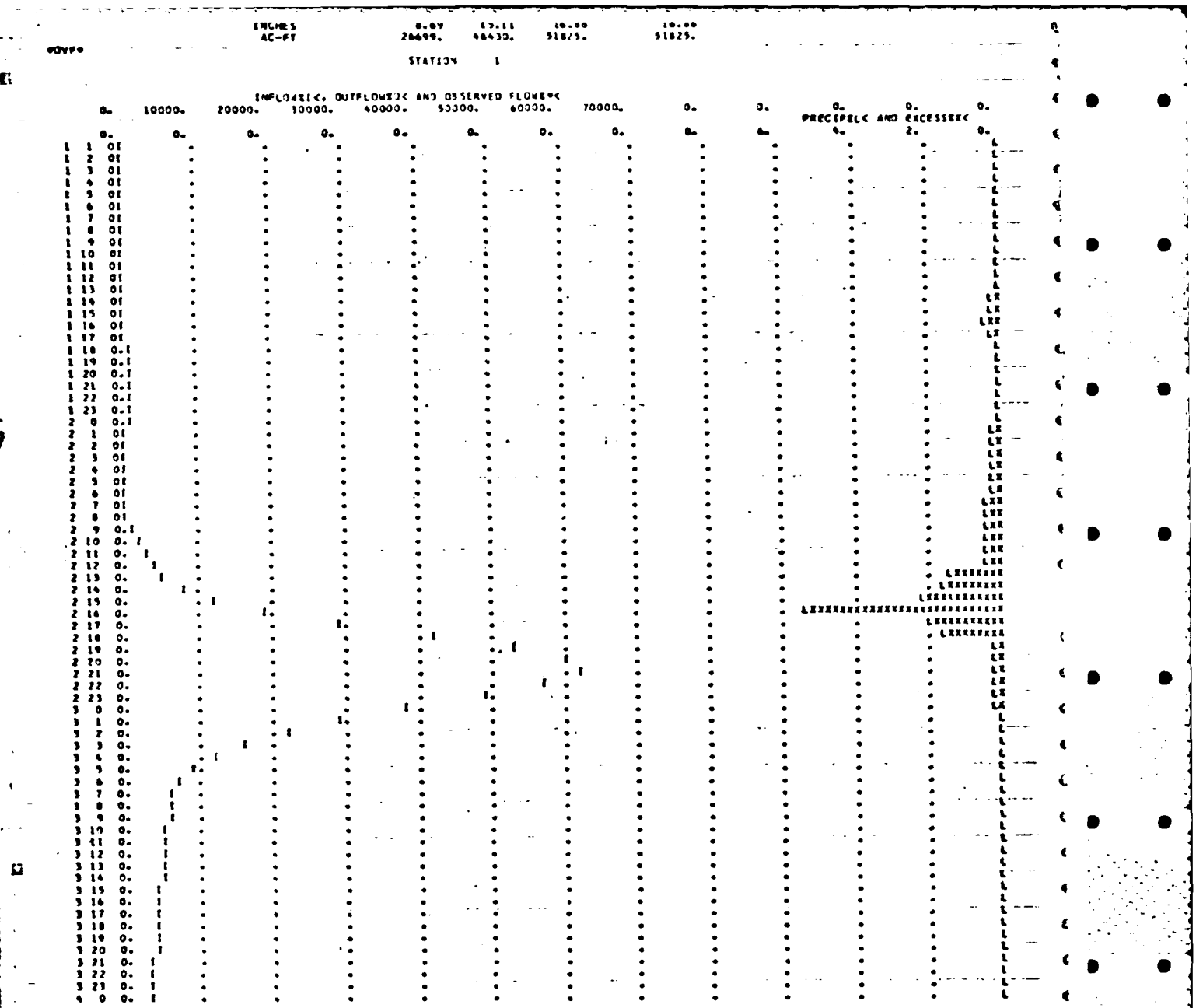
APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC= 6.96 AND R= 3.26 INTERVALS

UNIT HYDROGRAPH 22 END-OF-PERIOD ORDINATES, LAG= 5.53 HOURS, CP= 0.75 VOL= 1.00

381.	1359.	2595.	3834.	4735.	5056.	4756.	3868.	2823.	2072.
1521.	1116.	819.	601.	441.	324.	238.	174.	128.	94.
69.	51.								

END-OF-PERIOD FLOW

			TIME	RAIN	EXCS	COMP Q
1	1	0	0.01	0.00	109.
1	2	0	0.01	0.00	105.
1	3	0	0.01	0.00	101.
1	4	0	0.01	0.00	97.
1	5	0	0.01	0.00	93.
1	6	0	0.01	0.00	89.
1	7	0	0.02	0.00	86.
1	8	0	0.02	0.00	82.
1	9	0	0.02	0.00	79.
1	10	0	0.02	0.00	76.
1	11	0	0.02	0.00	73.
1	12	0	0.02	0.00	70.
1	13	0	0.09	0.00	67.
1	14	0	0.10	0.00	65.
1	15	0	0.13	0.01	65.
1	16	0	0.32	0.20	148.
1	17	0	0.12	0.00	355.
1	18	0	0.09	0.00	619.
1	19	0	0.01	0.00	873.
1	20	0	0.01	0.00	1097.
1	21	0	0.01	0.00	1118.
1	22	0	0.01	0.00	1047.
1	23	0	0.01	0.00	892.
2	0	0	0.01	0.00	655.
2	1	0	0.11	0.00	476.
2	2	0	0.11	0.00	359.
2	3	0	0.11	0.00	272.
2	4	0	0.11	0.00	209.
2	5	0	0.11	0.00	161.
2	6	0	0.11	0.00	126.
2	7	0	0.33	0.21	101.
2	8	0	0.33	0.21	451.
2	9	0	0.33	0.21	989.
2	10	0	0.33	0.21	1794.
2	11	0	0.33	0.21	2793.
2	12	0	0.33	0.21	3863.
2	13	0	1.41	1.29	5281.
2	14	0	1.70	1.58	7663.
2	15	0	2.12	2.00	11611.
2	16	0	5.37	5.25	18741.
2	17	0	1.98	1.86	29483.
2	18	0	1.55	1.43	41816.
2	19	0	0.17	0.05	53118.
2	20	0	0.17	0.05	60293.
2	21	0	0.17	0.05	61692.
2	22	0	0.17	0.05	57412.
2	23	0	0.17	0.05	48559.
3	0	0	0.17	0.05	38219.
3	1	0	0.0	0.0	29016.
3	2	0	0.0	0.0	21711.
3	3	0	0.0	0.0	16273.
3	4	0	0.0	0.0	12187.
3	5	0	0.0	0.0	9086.
3	6	0	0.0	0.0	6732.
3	7	0	0.0	0.0	6032.
3	8	0	0.0	0.0	5765.
3	9	0	0.0	0.0	5534.
3	10	0	0.0	0.0	5314.
3	11	0	0.0	0.0	5101.
3	12	0	0.0	0.0	4900.
3	13	0	0.0	0.0	4706.
3	14	0	0.0	0.0	4519.
3	15	0	0.0	0.0	4339.
3	16	0	0.0	0.0	4167.
3	17	0	0.0	0.0	4001.
3	18	0	0.0	0.0	3842.
3	19	0	0.0	0.0	3689.
3	20	0	0.0	0.0	3541.
3	21	0	0.0	0.0	3402.
3	22	0	0.0	0.0	3267.
3	23	0	0.0	0.0	3137.
4	0	0	0.0	0.0	3013.

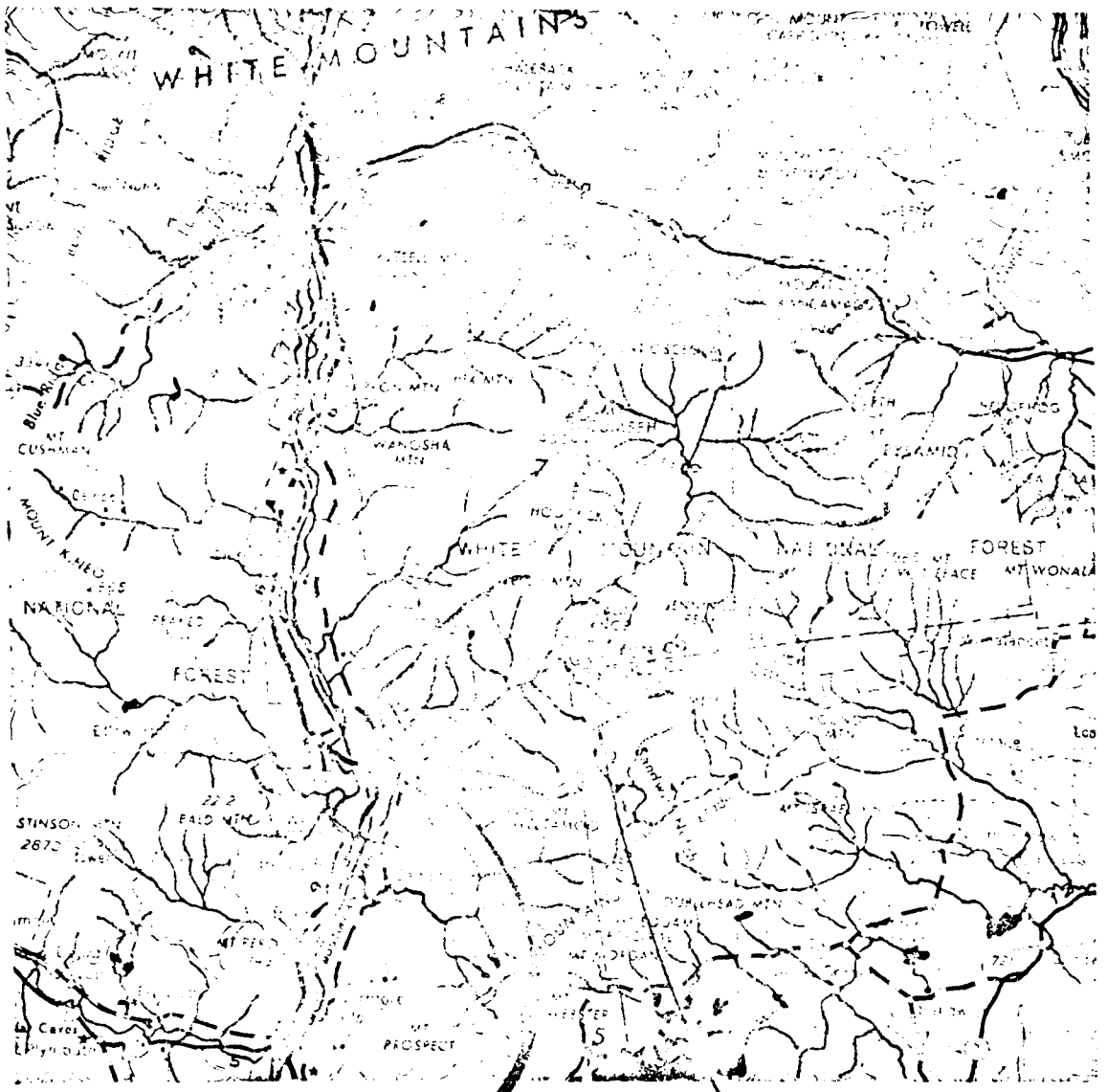

ENGMES
AC-FT
0.07
26699.
13.11
46430.
10.00
51825.
10.00
51825.
STATION 1
INFLOW#X, OUTFLOW#X AND OBSERVED FLOW#X
0. 10000. 20000. 30000. 40000. 50000. 60000. 70000.
PRECIP#X AND EXCESS#X
0. 2.

DVN

RUNOFF MULTIPLIED BY 0.50

55.	53.	50.	48.	47.	45.	43.	41.	40.	38.
36.	35.	34.	32.	33.	74.	177.	307.	436.	528.
559.	524.	426.	318.	238.	179.	136.	104.	81.	63.
91.	226.	494.	897.	1397.	1931.	2641.	3831.	5806.	9371.
14762.	20908.	26559.	30147.	30846.	28706.	24279.	19109.	14507.	10856.
8137.	6093.	4543.	3366.	3001.	2882.	2767.	2657.	2552.	2450.
2353.	2259.	2170.	2083.	2001.	1921.	1845.	1771.	1701.	1633.
1569.	1506.								

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	11816.	26907.	11698.	4353.	313312.
CMS	30846.	26907.	11698.	4353.	313312.
INCHES		4.34	7.55	8.43	8.43
AC-FT		13349.	23215.	25913.	25913.



SOURCE:

GUND SECTIONAL SHEETS
PORTLAND, ME. - N.H..
LEWISTON, ME.
SERIES V501 1956
REV. 1972

DUFRESNE-HENRY ENGINEERING CORP. ARCHITECT-ENGINEER	U.S. ARMY ENGINEER DIV. NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS.

NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS

CAMPTON POND DAM

DRAINAGE AREA MAP

CLIENT NO.	04-0090		SCALE 1"=4 MILES
ENGINEER	JAD		DATE

APPENDIX E

Information as Contained in the National Inventory of Dams

INVENTORY OF DAMS IN THE UNITED STATES

STATE	NUMBER	STATE	COUNTY	CONGR. DIST.	NAME	LATITUDE (NEAR)	LONGITUDE (WEST)	REPORT DATE DAY	MO	YR
NH	130	NED	009	02	CAMPTON POND DAM	43 [illegible].7	7138.0	07	JUN	79

POPULAR NAME	NAME OF IMPOUNDMENT
	CAMPTON POND

STATE	COUNTY	RIVER OR STREAM	NEAREST DOWNSTREAM CITY TOWN-VILLAGE	DIST FROM DAM (MI)	POPULATION
01	03	MAD RIVER	CAMPTON	0	1171

TYPE OF DAM	YEAR COMPLETED	PURPOSES	STRUCT HEIGHT (FT)	HYDRAUL HEIGHT (FT)	IMPOUNDING CAPACITIES MAX (AC-FT)	IMPOUNDING CAPACITIES NORMAL (AC-FT)	DIST DAM	FED R	FRV/FED	SCS A	VER/DATE
PGCT	1935	R	39	30	650	350	NED	G	Y	N	N

REMARKS
22-FORMER 1892

DIS DIAM	SPILLWAY LENGTH (FT)	SPILLWAY TYPE	SPILLWAY WIDTH (FT)	MAXIMUM DISCHARGE (CFS)	VOLUME OF DAM (CY)	POWER CAPACITY INSTALLED (MW)	POWER CAPACITY PRESENT (MW)	NAVIGATION LOCKS LENGTH (FT)	NAVIGATION LOCKS WIDTH (FT)	LENGTH (FT)	WIDTH (FT)	LENGTH (FT)	WIDTH (FT)
F	300	U	151	16000									

OWNER	ENGINEERING BY	CONSTRUCTION BY
USDA FS	USDA FS	USDA FS

REGULATORY AGENCY			
DESIGN	CONSTRUCTION	OPERATION	MAINTENANCE
NH WATER RES BD	NH WATER RES BD	NH WATER RES BD	NH WATER RES BD

INSPECTION BY	INSPECTION DATE DAY	MO	YR	AUTHORITY FOR INSPECTION
DUFRESNE HENRY ENGINEERING	02	MAY	79	PUBLIC LAW 92-367 AUG 1972

REMARKS

END

FILMED

8-85

DTIC